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# ENVIRONMENTAL ASSESSMENT BOARD

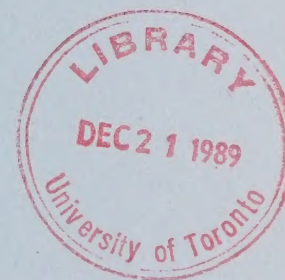
VOLUME: 167

DATE: Thursday, December 7th, 1989

BEFORE: M.I. JEFFERY, Q.C., Chairman

E. MARTEL, Member

A. KOVEN, Member



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HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL  
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR  
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental  
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental  
Assessment for Timber Management on Crown  
Lands in Ontario;

- and -

IN THE MATTER OF a Notice by the  
Honourable Jim Bradley, Minister of the  
Environment, requiring the Environmental  
Assessment Board to hold a hearing with  
respect to a Class Environmental  
Assessment (No. NR-AA-30) of an  
undertaking by the Ministry of Natural  
Resources for the activity of timber  
management on Crown Lands in Ontario.

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Hearing held at the offices of the  
Environmental Assessment Board, 2300 Yonge  
Street, Suite 1201, Toronto, Ontario, on  
Thursday, December 7th, 1989, commencing at  
9:00 a.m.

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VOLUME 167

BEFORE:

MR. MICHAEL I. JEFFERY, Q.C.	Chairman
MR. ELIE MARTEL	Member
MRS. ANNE KOVEN	Member



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I N D E X   O F   P R O C E E D I N G S

<u>Witness:</u>	<u>Page No.</u>
<u>DEAN GORDON BASKERVILLE, Resumed</u>	29607
Continued Cross-Examination by Mr. Hanna	29607
Cross-Examination by Mr. Cosman	29714
Continued Cross-Examination by Mr. Hanna	29738





I N D E X   O F   E X H I B I T S

<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
977	Document entitled: Strategic Impacts of Failure to Control Competition.	29652
978	Paper entitled: Tools to Guide our Decision's Reliability, authored by Dr. G. Baskerville.	29670
979	Article authored by Dean Gordon Baskerville entitled: Accumulative Environmental Effects of Bi-National Perspective, Canadian Environmental Assessement Research Council conference.	29738



1 ---Upon commencing at 9:08 a.m.

2 THE CHAIRMAN: Good morning. Please be  
3 seated.

4 Are there any matters of a preliminary  
5 nature to take care of today?

6 MR. TURKSTRA: Mr. Chairman, I have  
7 looked at Dr. Baskerville's air flight schedule and, in  
8 order to get him on the plane that goes to Banff, I  
9 would like to ask the Board to end at 4:30 today, and I  
10 indicated that to Ms. Devaul and to Mr. Hanna, if that  
11 is agreeable, to get him out of here.

12 THE CHAIRMAN: Yes, that will be  
13 agreeable to the Board. Very well.

14 Mr. Hanna?

15 GORDON L. BASKERVILLE, Resumed

16 CONTINUED CROSS-EXAMINATION BY MR. HANNA:

17 Q. Good morning, Dr. Baskerville.

18 A. Good morning.

19 Q. I would like to finish up a few  
20 points I think were left unresolved with respect to  
21 Exhibit 976 that we were reviewing yesterday, which was  
22 the comparison of the habitat supply analysis and the  
23 guidelines.

24 Now, one of the questions we were talking  
25 about was the length of time to implement a full-blown



1 habitat supply analysis, and I believe you went through  
2 the chronology of its application in New Brunswick and  
3 we were talking in the order of 10 years I think of an  
4 evolution to put that in place, something in that order  
5 of magnitude.

6 A. Yes.

7 Q. Now, when was habitat supply analysis  
8 first started, when was the whole exercise first  
9 started in New Brunswick?

10 A. Like the actual seminal point? At  
11 some point during the forecast of timber supplies for  
12 the first set of management plans made in 1982 and the  
13 notion of trying to do a similar sort of thing with  
14 habitat emerged.

15 The person that was the first to do  
16 anything substantive with that was a man named Jeff  
17 Patch who in that context at least, in the New  
18 Brunswick context, did a Master of Forestry thesis on  
19 the topic, submitted the MF report and went on working  
20 on that particular project, but never completed his  
21 Master of Forestry. He is now Director of Wildlife.

22 I guess the task of doing it became of  
23 consuming interest to him. There was support from  
24 about 1986 onwards from Wildlife Habitat Canada.

25 Now, that is where it originated there,

1 but I would say that the idea is no different than what  
2 Jack Ward Thomas had done in the Blue Mountains, the  
3 difference in principle is small. The distinguishing  
4 feature would be that this was done for a very large  
5 area and we computerized the thing to make it easier to  
6 handle.

7 It is not greatly dissimilar from the  
8 work of Gross and his associates in Colorado which  
9 would have been around 1978. So I do not think we  
10 would claim to have originated the idea, we developed  
11 it in New Brunswick.

12 Q. It's fair to say that the notion now  
13 exists in Ontario as a result of various people from  
14 New Brunswick now being involved in forestry in Ontario  
15 and initiatives being taken in Ontario. So it's fair  
16 to say we are at least at the notion level now in  
17 Ontario?

18 A. At least, yes.

19 Q. Now, it's my understanding that New  
20 Brunswick -- there is a schedule of attempting to have  
21 the habitat supply analysis in an operational form by  
22 January, 1981 in order that it can be applied to the  
23 next round of timber licence reviews; is that correct?

24 A. That's correct. The attempt is to  
25 have enough habitat curves, habitat yield curves, if I

1       could use that phrase, available, say three or four, to  
2       make it reasonable to have licensees, industrial  
3       licensees carry out habitat supply analysis for their  
4       five-year management plans which will be submitted in  
5       '92.

6                   THE CHAIRMAN:   Excuse me, you are saying  
7       'three or four', and that would cover the notion of  
8       having habitat supply analysis at the operational level  
9       in New Brunswick?

10                  THE WITNESS:   It would have it an  
11       operational level for ungulates, marten and birds that  
12       feed in crown, topfeeders they call them.

13                  THE CHAIRMAN:   And what would you suggest  
14       would be the required number of yield curves that might  
15       be applicable to Ontario to have it at an operational  
16       level in Ontario, given the fact that it is a much  
17       larger area, although the diversity of wildlife may not  
18       be all that different?

19                  THE WITNESS:   The level at which we start  
20       something like this, I do not -- it is not a clear  
21       number in my mind at least.   The wildlife people in New  
22       Brunswick thought there might be 15 that were needed in  
23       total to do a reasonable job.   There are many more  
24       species than that, but they thought that with 15  
25       characterizations that they could capture most of the



1 problem.

2 The issue was: Do you wait until you  
3 have got all 15 or do you implement what you have got  
4 as soon as you have got it?

5 And the decision was taken there that if  
6 they had two or three available immediately that it  
7 would be to everyone's benefit in the planning process  
8 if they had to carry out a habitat supply analysis  
9 along with the timber supply analysis in their  
10 management plan.

11 To come back to your question: How many  
12 would you need for, say, one management unit here?  
13 Probably three or four, and let me explain why I come  
14 to such a conclusion.

15 As long as you keep the mechanics, the  
16 dynamics of the populations and their habitats obscure  
17 you can make some rules and the public will generally  
18 accept that you have done something, you are trying to  
19 protect them.

20 As soon as you make one or two of them  
21 explicit, the instant perception is: Aha, you have  
22 sold all the rest down and only one species or two  
23 species or three species are, in fact, going to be  
24 managed or have their habitat managed. And I think you  
25 would find it very difficult in introducing it here.

1 The public response certainly would be that: Aha, you  
2 have backed off, you are only going to manage for moose  
3 and warblers, or whatever the two were.

4 There is very little perception, in my  
5 view, in the public of realistic connections in --  
6 cause/effect connections in the dynamics of these  
7 populations and there would be zero recognition that  
8 doing two well might be a lot better than done 20  
9 weakly.

10 MS. SWENARCHUK: Mr. Chairman, I do not  
11 wish to interrupt, but could I ask one question of  
12 clarification?

13 THE CHAIRMAN: Do you have any problem,  
14 Mr. Hanna?

15 MR. HANNA: No.

16 THE CHAIRMAN: Go ahead.

17 MS. SWENARCHUK: Dr. Baskerville, when  
18 you say in Ontario we would probably need three or four  
19 curves for a management unit, are you implying that the  
20 species might differ from one management unit to the  
21 next, or are you saying three to four habitat curves  
22 that would be the same across the province?

23 THE WITNESS: I would not -- there may be  
24 some consistency from management unit to management  
25 unit for these, but I wouldn't start on that

1 presumption. I would do it for a management unit. I  
2 would emphasize again that it would -- what we are  
3 talking about is how you introduce an idea, not how you  
4 do it completely. Three or four is a beginning, not an  
5 ending.

6 MR. HANNA. Q. Dr. Baskerville, given  
7 that the Ministry is currently proposing the featured  
8 species approach, would it be reasonable, in your view,  
9 to take those species they have identified at least as  
10 a starting point now as at least the basis to develop  
11 those yield curves, those habitat yield curves?

12 A. It's a reasonable place to start. I  
13 would say again, Mr. Chairman, that any approach to  
14 this, if you make guidelines or rules, underlying those  
15 is the presumption that these habitat yield functions  
16 exist, they are impossible to escape if you make a  
17 prescription or a claim.

18 So the issue is not whether or not they  
19 are there, it is whether or not they are transparently  
20 evident to anyone who wants to review them.

21 Q. Okay. Now, back --

22 MR. MARTEL: Could I ask one question?

23 THE WITNESS: Yes, sir.

24 MR. MARTEL: If you were to start now,  
25 even using the featured species approach, those



1 features that are involved in that, how long would it  
2 take to develop the type of program that you are  
3 talking about, to put it in effect?

4 It has taken 10 or 12 years in New  
5 Brunswick. Starting from our point now, the featured  
6 species, how long would it take to implement even for  
7 three or four?

8 THE WITNESS: On one management unit--

9 MR. MARTEL: Yes.

10 THE WITNESS: --with people who had an  
11 interest and willingness to do that, I would suggest  
12 that the people who can write guidelines could also  
13 draw those curves and that they could be up and running  
14 inside five years, maybe not to the point where they  
15 would have someone else like an FMA holder doing it.

16 There is a curious thing that happens  
17 here, Mr. Chairman, the scientific-type people, when  
18 you draw one of these -- when a wildlife manager draws  
19 a yield curve he will look at it and he'll say: You  
20 can't do that, you don't have data.

21 What you need to do is not let people cut  
22 deer yards, or whatever and if you ask them: Well,  
23 what is the relationship of the population back? You  
24 will find that lo and behold they actually have one of  
25 these things in their mind, but they are unwilling to

1 lay it out on the table.

2 I keep repeating this, but I think it is  
3 the crucial issue. The issue here really is not  
4 whether or not these things exist, they do in nature  
5 and they do in the manner in which we approach habitat  
6 management and wildlife management; the issue is  
7 whether or not they are available for us to look at and  
8 to evaluate.

9 THE CHAIRMAN: Okay. Just if I might,  
10 Mr. Hanna, just to clarify a couple of things. To get  
11 what you are saying straight, Dr. Baskerville, if the  
12 Ministry applied it to one unit, I assume that you  
13 would be looking for the one unit to be not an overly  
14 large one, it would probably be easier to start with a  
15 smaller unit as opposed to one of the really large  
16 units.

17 But would you be advocating that for that  
18 unit the territorial base be the same; in other words,  
19 the boundaries for the wildlife unit coincide with the  
20 timber management unit?

21 THE WITNESS: Yes, clearly.

22 THE CHAIRMAN: If it didn't already?

23 THE WITNESS: Yes. In fact, maybe I  
24 should have clarified that. Certainly if you were  
25 going to do this, it would be pointless, in my view, to

1 do a habitat supply analysis for something the size of  
2 one of the wildlife units that encompasses 20 or 30  
3 management units for a couple of reasons.

4 One, an area that large you might as well  
5 just use an average, it wouldn't make any difference.  
6 You could not detect -- on a million hectares you could  
7 not detect the impact of one year's harvesting, it's  
8 lost, it's a grain of sand.

9 What you need is to get the unit down,  
10 get it down to a size where there is on one area of  
11 land control of the harvest schedule and silviculture  
12 schedule as that relates to timber and as it relates to  
13 the impacts on other things.

14 THE CHAIRMAN: Okay. And would you  
15 suggest - I think you have already suggested it - it  
16 would be easier to start this on a Crown unit as  
17 opposed to an FMA unit, because the total management of  
18 both the wildlife side and the timber side would be in  
19 the hands of the Crown?

20 THE WITNESS: Yes.

21 THE CHAIRMAN: Would that --

22 THE WITNESS: Well, in one set of hands,  
23 it's easier to start that way, yes.

24 THE CHAIRMAN: That is what I mean,  
25 without two authorities, suppose there two people



1 having the responsibility for the various activities  
2 being separate, would be in the same set of hands?

3 THE WITNESS: The most important  
4 condition for starting rather than size of the unit, I  
5 think, will be the willingness of the players to try  
6 it.

7 THE CHAIRMAN: And then it is your view  
8 that if this were successful - and you have no reason  
9 to believe it would not be successful - that it could  
10 then be expanded, learning from the experience of the  
11 test unit, so to speak, is that--

12 THE WITNESS: Yes.

13 THE CHAIRMAN: --the way you would go  
14 about it?

15 THE WITNESS: That is the reasonable way  
16 to do it, yes.

17 MR. MARTEL: What is the next step,  
18 though, after you have got the one unit in place? You  
19 can't apply it -- you can't apply it uniformly across  
20 the undertaking, how do you expand it from one; in  
21 which direction do you go?

22 Let's say you have three or four species  
23 only, you are going to expand that and at the same time  
24 try to move it out.

25 THE WITNESS: Some of the things will be

1 consistent. People do not have much trouble looking at  
2 a yield curve for volume and saying there are three  
3 sites and recognizing that when you move from one unit  
4 to another the proportion of the area that is in  
5 different sites is different and, therefore, you are  
6 using different yield curves and different proportions.

7 But the principle carries over and, in  
8 fact, the actual yield curves carry it, it's which  
9 ones -- the relative use of the three, say, for three  
10 sites.

11 I think that you will find as we do this  
12 sort of analysis with wildlife habitat that we will see  
13 that the relationship of the population to its habitat  
14 is relatively consistent from place to place, but there  
15 will be changes in terms of species mix in the tree  
16 population, the habitat side of it, that will need to  
17 be adjusted.

18 So I don't think it is a major  
19 undertaking to start moving it from a point of, a  
20 technical point of view, it will be from the people  
21 point of view.

22 THE CHAIRMAN: And ultimately, as you  
23 start moving it out is it the case, in your view, that  
24 you are going to have to, at least at that stage, start  
25 changing the boundaries of the wildlife units that

1 coincide with the timber management units?

2           Again, the reason I am harping on all of  
3 this is because we are facing in Ontario a different  
4 structure than you might have in New Brunswick wherein  
5 the wildlife units, as you are aware, do not in any way  
6 coincide with the timber management units. And you  
7 seem to have made the point quite clearly that this  
8 habitat supply analysis does not really function  
9 appropriately if you are working off a different land  
10 base.

11           THE WITNESS: Mm-hmm. If you recall in  
12 answering some earlier questions I suggested that I  
13 find it more comfortable and more meaningful to find --  
14 discover the production possibilities for timber for a  
15 management unit given the drains on it and the power  
16 that you have got in terms of men, equipment and so on,  
17 and the basic structure of the forest, and then you sum  
18 these to find out what the production possibility is at  
19 some higher level.

20           I would approach this in an analogous  
21 manner, I would discover on a unit of land where you  
22 have control of -- you are interfering with habitat and  
23 have some control over that interference, if you want  
24 to see harvesting as an interference, then at that  
25 level I would discover what is the trade-off that I can



1 make and then sum these up to get my objectives at the  
2 larger level.

3 Taking an objective at the top out of  
4 context of the biological dynamics at the bottom and  
5 distributing it downward is virtually certain to reach,  
6 at least in some places at the bottom, a conclusion  
7 that is impossible, an objective that is unreachable.

8 MRS. KOVEN: I understand what you are  
9 saying, Dr. Baskerville. We have heard evidence,  
10 though, to the effect that wildlife management units  
11 often take into account a geographical area that has  
12 something in common.

13 In other words, there may be three timber  
14 management units that are demarcating a common sort of  
15 wildlife area, whether it is - I don't know what to use  
16 as an example - but a swampy area or an area --  
17 something that has a similarity in one area, and that  
18 is why the wildlife management unit is drawn around  
19 that.

20 What you seem to be proposing is that the  
21 wildlife management unit boundaries are, in fact, not  
22 very important and that you would look primarily at the  
23 timber management unit which is a smaller piece of  
24 land.

25 THE CHAIRMAN: Or maybe you should go the

1 other way, maybe you should change the timber  
2 management unit boundaries to coincide with what you  
3 feel is a proper wildlife boundary unit.

4 MR. HANNA: Mr. Chairman, we all jumped  
5 in on this one and I will throw in my two cents' worth  
6 before Dr. Baskerville answers.

7 I think the thing that we have to keep in  
8 mind is that there is two issues here: One is the  
9 population level control, like hunting pressure and  
10 those sort of things, which has certain broader scale  
11 and, I'm sure you are well aware, enforcement-type  
12 concerns and I just want Dr. Baskerville to keep that  
13 in mind when he answers this question.

14 And then you have got the other side  
15 which is the habitat side and the habitat being  
16 manipulated at a much more local level, and I just want  
17 to make sure that that is kept in mind too, because one  
18 of the understandings I have with the wildlife  
19 management units is that one of the reasons we have  
20 this broader area is for the practicality of  
21 undertaking things such as enforcement activities,  
22 setting seasons and those sorts of thing.

23 So I just want to keep that in mind also  
24 in the answer.

25 THE WITNESS: Could I answer Mrs. Koven's

1 question first?

2 THE CHAIRMAN: Yes.

3 THE WITNESS: I am not comfortable with  
4 the idea of boundaries in nature, it's really awkward.  
5 Some of them are clear cut; the edge of a bog sometimes  
6 you can tell exactly when you walk into it.

7 But by and large our boundaries in nature  
8 are arbitrary. We drew a line where it's convenient  
9 for us to say these things are different from the way  
10 we use them than the things on the other side of that  
11 boundary.

12 The issue here is whether or not you look  
13 at moose population on a million hectares or on a  
14 hundred thousand, and if a hundred thousand is too  
15 small to capture reasonable variability then you do, in  
16 fact, need to find a way to aggregate units, but in  
17 answer -- and it's related to the question posed by the  
18 Chairman.

19 If you make the timber units any larger  
20 you will lose control. They are at the upper limit  
21 now, I would argue, of the ability -- you have got one  
22 unit forester handling a couple of hundred thousand  
23 hectares, you are at the upper limit of credibility for  
24 realistic design and implementation.

25 MR. HANNA: Q. Dr. Baskerville, does

1       that comment also apply to wildlife biologists managing  
2       habitat?

3                   A.   Most certainly.

4                   MRS. KOVEN:   Dr. Baskerville, in the New  
5       Brunswick experience the person who is developing these  
6       habitat supply yield curves, is this person primarily a  
7       wildlife biologist or did I hear you say earlier you  
8       thought a unit forester could do that as well?

9                   MR. HANNA:   Dr. Baskerville, before you  
10      answer that question.   Mrs. Koven, I can tell you that  
11      it is our expectation to call Mr. Patch as one of our  
12      witnesses and so he will be here before the Board to  
13      answer that question directly for you, if you wish.

14                  I have no problem with Dr. Baskerville  
15      answering it, but I just wanted to inform you that we  
16      are anticipating having Mr. Patch here to answer those  
17      questions.

18                  MRS. KOVEN:   Well, what I am interested  
19      in is knowing in New Brunswick in every one of these  
20      units do you have a unit forester and a wildlife  
21      biologist?

22                  THE WITNESS:   It is not a perfect  
23      analogue, there are 10 licences on Crown land.   There  
24      is roughly the equivalent, but the wildlife biologists,  
25      as they exist now, are all in the provincial employ.



1 Timber management design is in the side of industry,  
2 industry has yet taken over managing for habitat  
3 because we couldn't write the rules and until we could  
4 write the rules we weren't about to ask them to do it.

5 One company has -- two companies have  
6 contracted wildlife biologists now, and a third one has  
7 one that is not full time, that works on other  
8 properties outside the province.

9 The people who are actually trying to do  
10 that are a range. I believe it's correct to say that  
11 all our graduates are of a registered wildlife -- an  
12 accredited wildlife program. We have a program, you  
13 can do a Bachelor of Science in Forestry at UNB and by  
14 taking about 30 per cent extra courses that are  
15 specified in mostly -- well, not mostly, about  
16 two-thirds, that is mostly, two-thirds in the  
17 Department of Biology, you finish with a Bachelor of  
18 Science in Forestry, but with a program that is  
19 accredited by the American Association of Wildlife  
20 Biologists or whatever it is. People all have that  
21 level of training either from a Canadian or an American  
22 school.

23 MR. HANNA. Q. I want to go back to  
24 where we started here, Dr. Baskerville, in terms of --  
25 where I want to go is look at the timing and what is a

1 reasonable expectation in implementing this approach,  
2 if the Board is so persuaded it is the approach to  
3 pursue.

4 Now, you had indicated that if you really  
5 put your mind to it it would probably take five years  
6 approximately for one forest management unit to put  
7 this process in place.

8 Now, are you suggesting to basically put  
9 everything else on hold until the end of that five  
10 years, or do you see intensively going at it with that  
11 one forest management unit but doing other parallel  
12 activities in other areas?

13 A. I am not sure I understand the  
14 question exactly, but I certainly would not suggest  
15 that you back off on anything that is being done now  
16 while you introduce something that is better.

17 I used one unit because I really believe  
18 that this is going to be more a people problem. The  
19 skills to do this and the interest in doing this, you  
20 don't have 117 people, I would guess, that could do  
21 that starting tomorrow, or could do it in a way that  
22 was biologically reasonable.

23 They might be able to follow a set of  
24 rules, but there is much more. In this first cut you  
25 want someone who is thinking hard about populations,

1 not about how to build a rulebook. So the rate at  
2 which this could be spread across all of the units  
3 would depend entirely on the kind of manpower that is  
4 there.

5 Q. That was my question.

6 A. The quality of manpower, not  
7 quantity.

8 Q. I will tell you where I am coming  
9 from: As I am sure you are aware, this Board is faced  
10 with making a decision at the end of all of this and I  
11 am trying to think how we can put this in what the  
12 Board calls 'terms and conditions'.

13 In other words, how can we say: Here is  
14 a reasonable way to proceed on introducing this  
15 approach over the timeframe that this decision will  
16 have effect? And that is the mindset that I am coming  
17 from, and I am trying to see if there is a way to  
18 provide the Board with some assistance as to how they  
19 might see this process being implemented in that  
20 effect.

21 Now, the decision of this Board is -  
22 well, not necessarily the decision is going to be  
23 reviewed - but the environmental assessment itself, the  
24 timber management planning process is proposed to be  
25 reviewed after six years.

1                   What would you expect or what would you  
2                   want to see at that six years, at that six-year point?  
3                   If this approach is adopted, what would you want to see  
4                   as a performance measure, if you will, that you are  
5                   moving in a direction that you want to go.

6                   THE CHAIRMAN: Bearing in mind that this  
7                   decision may not issue for a couple of years yet, at  
8                   the rate we are going, so you may have eight to work  
9                   with.

10                  THE WITNESS: I believe that you will  
11                  find that there will be units that are already on the  
12                  road to doing this, and I know that there are people  
13                  thinking of it, maybe well beyond the thinking stage.

14                  It might be reasonable to have an  
15                  expectation of a number of units that could reach  
16                  certain standards and to specify the standards in terms  
17                  of the capability to forecast habitat availability for  
18                  a certain number, say three or four species guilds,  
19                  featured species if you want.

20                  When I listen to biologists, while every  
21                  individual species has its own unique habitat  
22                  requirements, there is sufficient overlap between  
23                  groups of them that it - just as we do with tree  
24                  species - it is feasible to group them.

25                  I think it would be possible to set a



1 target. I am a little uneasy with that because you  
2 can't -- you are talking about a philosophical change  
3 here really in approach and that is a very difficult  
4 thing to mandate.

5 I do not think, for instance, that this  
6 will work. You could introduce this by writing a  
7 manual for wildlife biologists and timber management  
8 guys that had two columns on each page with parallel  
9 columns with what the two guys were supposed to do, two  
10 people were supposed to do at any point in time. These  
11 people have to work very closely together to make such  
12 a thing work.

13 Trying to force it will get you the  
14 appearance of compliance without compliance on the  
15 ground, and to me that is worse than not having made  
16 any progress at all.

17 The issue here to me is: How do we  
18 achieve a balance between timber supply and habitat  
19 supply on a management unit; not: How do we give the  
20 appearance of that. I am uneasy about setting a  
21 target, I guess, is what I am saying.

22 MR. HANNA: Q. I think we all face that  
23 and I guess that is one of the things that we will have  
24 to put our minds to as to what is a reasonable way to  
25 deal with the people problem that you have identified,

1 and I guess that will be left to the ingenuity of the  
2 people writing the terms and conditions.

3 You mentioned in terms of the current  
4 manpower constraints in terms of not just quantity but  
5 also quality, but you did mention the quantity of 117  
6 people, and I presume that was because that is the  
7 number of timber managements units; that was where you  
8 came up with that number?

9 A. That's correct.

10 Q. Is it your view that to make this  
11 type of process work you are basically going to require  
12 at least one wildlife biologist working with each unit  
13 forester; in other words, you need that partnership  
14 because they have both got a similar amount of work on  
15 their plate and they have to be working basically on a  
16 cooperative basis?

17 A. Actually, Mr. Chairman, I think that  
18 if I really think about that it seems to me that we are  
19 talking about a problem that is more complex than the  
20 trees. The animals move around, the trees at least  
21 stay in one place and we can go and measure them.

22 I think to be realistic, to imagine that  
23 you could actually control habitat and match it to the  
24 kinds of population levels that you want, you probably  
25 do need of the order of at least one wildlife person on

1 each unit.

2 MR. MARTEL: Could I just inject?

3 THE WITNESS: And that is a quantum leap.

4 MR. MARTEL: I think there is more than  
5 one forester on some units; is there not?

6 THE WITNESS: That could be. There  
7 certainly is on FMAs, there would be more than one.

8 MR. MARTEL: In fact, you are looking  
9 even at more than 117 biologists. If we are looking at  
10 eventually reaching that point, if you need one to  
11 match one, we are looking at more than 117.

12 THE WITNESS: I think the thing here is  
13 if you want to make it work I do not think that you can  
14 send somebody over from Sioux Lookout 40, 50 kilometres  
15 outside of where he normally works or 100 kilometres  
16 and sit down for a half a day and do this up and then  
17 go home. I think you need interaction that is  
18 day-to-day consistent.

19 THE CHAIRMAN: Well, one of problems we  
20 have heard about is the fact that it's not all that  
21 easy to even get unit foresters to work for any length  
22 of time for government, in the sense that often there  
23 is an interchange between government employees and  
24 industry; in other words, the unit forester might start  
25 off on a Crown unit as a unit forester and then

1 ultimately take a position with industry.

2 If you needed 117, just to use the  
3 number, wildlife biologists, (a) would they be  
4 available, number one; and would there be a difficulty  
5 in filling that kind of manpower requirement or person  
6 requirement if you had the financial resources to do  
7 so, if there was a commitment by government to do so?

8 THE WITNESS: The answer is quite simple,  
9 no, I do not believe that many are available and there  
10 would be great difficulty in staffing it if you tried  
11 to do it all at once.

12 THE CHAIRMAN: So it would be almost a  
13 cooperative effort with the universities to start  
14 producing more or channeling more into this field, if  
15 you required that kind of thing, because you can't  
16 train them overnight, I assume?

17 THE WITNESS: That's correct, yes. The  
18 main message there is that you couldn't start on the  
19 whole of the province all at once, I don't believe  
20 that's technically feasible.

21 MR. HANNA. Q. Dr. Baskerville, just  
22 several other matters that arose yesterday. I would  
23 like to talk about the guidelines, I am speaking here  
24 strictly about the moose guidelines here.

25 One of the difficulties that has been



1 discussed with respect to the moose guidelines is if  
2 the Board decides to incorporate the moose guidelines  
3 as they stand in their decision, they then become part  
4 of that decision and become binding; and when they  
5 become binding, to change the guidelines would require  
6 an amendment process, they become less flexible, if you  
7 understand what I mean.

8 I am looking at the habitat supply  
9 analysis as a potential alternative or as a way to  
10 move - how should I say, I appreciate your statement  
11 about the dichotomies and I don't mean necessarily in a  
12 strict dichotomy way - but if we go to habitat supply  
13 analysis, does it have the same sort of difficulty or  
14 potential difficulty in terms of an amendment and  
15 updating?

16 A. I am not sure I can answer that, I  
17 don't know what the problems are in doing that. If, in  
18 fact, what the Board mandated was a specific form: Do  
19 it this way, and da, da, da, da, then presumably it  
20 would require the same approach.

21 Q. But if it was to say: We must  
22 establish measurable, quantifiable objectives in the  
23 timber management plan for wildlife; we must use a  
24 habitat supply model type of analysis for cause/effect  
25 linkages and the other things that you have described,

1 the process becomes enshrined, but the actual knowledge  
2 in the system itself can be refined over time, if you  
3 follow what I mean.

4 A. Yes. If you think of what we just  
5 spoke of, Mr. Chairman, such a requirement would  
6 inevitably lead to a trivial forecast of habitat supply  
7 on a majority of management units. If you require such  
8 a process on every one there clearly is not the  
9 capability to do that suddenly on all of them.

10 I mention that because I think that in  
11 natural resource management we frequently make that  
12 mistake, that we will make a requirement that covers  
13 everything as if we could do it all suddenly now.

14 The net effect of that -- and you don't  
15 have to look very far in resource or environmental  
16 management to discover that the net effect of that is  
17 that where it's possible to do these good things we do  
18 them, in the rest of the area we go through the form,  
19 go through the motions and then wind up in an argument  
20 about: Well, you went through the motions, but you did  
21 not achieve what was supposed to be achieved on the  
22 ground, and we are found to be at fault.

23 I am really uneasy about trying to make  
24 any of these things happen suddenly on large areas in  
25 complex systems.

1 THE CHAIRMAN: No, but you would agree  
2 that if you wanted that approach to start in terms of  
3 changing the mindset that might be out there it might  
4 be preferable, if not advisable, to say on one unit or  
5 two units you shall go down this path?

6 THE WITNESS: Yes.

7 THE CHAIRMAN: And in that way there is  
8 no choice about the start, in the sense that there is a  
9 reason for those in charge to have to start because  
10 that is the way it is laid down.

11 As far as expansion goes, that could take  
12 the course of, as you evaluate the results of what you  
13 have done and as the knowledge base increases, it could  
14 be expanded accordingly?

15 THE WITNESS: That's a much safer  
16 approach.

17 MR. HANNA. Q. The next topic I was  
18 going deal with, Dr. Baskerville, is featured species  
19 and we have I think already touched on it. Many of the  
20 questions I have here we have dealt with. I just want  
21 to deal with one thing here that we haven't dealt with,  
22 or perhaps you have and I just want to make sure I  
23 understand it.

24 I want to make sure I understand. Again,  
25 I am talking about the habitat supply analysis type of

1 approach, what would be required for each featured  
2 species or guild in order to apply that approach? And  
3 I have written down here three things and I will ask  
4 you to consider these three things and add any others,  
5 or delete the ones I have.

6 First of all, I had a population  
7 objective - not necessarily in the order of which they  
8 would be developed - but a population objective,  
9 habitat population cause/effect linkage, and then  
10 periodic population and timber management activity  
11 measurements, the feedback.

12 Would those be the three essential  
13 elements that you would see or are there others, or are  
14 some of those not necessary?

15 A. The last two, the linkage and the  
16 measurement or evaluation of -- the characterization of  
17 the linkage are crucial, you need to build such a  
18 structure in order to determine what is a feasible  
19 objective; the objective should be set in the context  
20 of what the biological structure can deliver, not  
21 extraneous to that structure.

22 So you need to do a habitat supply  
23 analysis to determine what is a reasonable, feasible --  
24 biologically feasible population objective, but the  
25 three things are essential.



1 THE CHAIRMAN: Sorry, I did not  
2 understand. Are you saying that you have to go through  
3 habitat supply analysis to get the objective, or you  
4 set the objective and then evaluate how you arrived at  
5 that objective?

6 THE WITNESS: Yes. It's a cyclical  
7 thing. In timber it is perhaps easier to see, but what  
8 I saw in 1986 was a production target that was set  
9 without any reference to the production possibilities  
10 in the management unit, it was set slow going, and then  
11 I saw each of the units producing wood, but no  
12 reconciliation between those, no biological  
13 reconciliation.

14 It is easy to set an objective that is  
15 not biologically feasible to reach or in fact  
16 practically feasible in terms of the markets and  
17 manpower and access to the forest. I don't see any  
18 difference here, that it makes sense to me rather than  
19 to say -- start out of hand and say: This is what we  
20 want from a population, to characterize the population  
21 and its habitat and see what is reasonable to expect  
22 over time, set a target in that context and then begin  
23 the loop.

24 MR. HANNA. Q. Dr. Baskerville, I  
25 thought this was going to be a new issue, but it sounds

1 like your answer is exactly the question I was going to  
2 ask, but I just want to elaborate on it a bit.

3 I am looking in the audit, Exhibit 16, on  
4 page 70. At the bottom of the page, the bottom  
5 paragraph there. That is describing the concepts with  
6 respect to timber; is it not, that you just discussed?

7 A. Yes, that's correct, that is the  
8 process I just described.

9 Q. Now, given that we don't have habitat  
10 supply analysis in the province at the present time,  
11 the comments that you have made here with respect  
12 timber would equally apply to the wildlife targets that  
13 we have?

14 A. When the targets are set they make a  
15 presumption, they force a presumption about what the  
16 biological community can produce, it is inescapable.  
17 And as a first step it seems to me prudent to evaluate  
18 those presumptions, get them exposed and evaluated.

19 Q. And that was the matter of setting up  
20 the cause/effect linkage and looking at production  
21 possibilities?

22 A. Yes.

23 Q. Now, the trade-offs become, if you  
24 will, a social policy-type decision; the trade-offs  
25 between timber and wildlife and the production policies

1 where there is conflicts and whatever, what level of  
2 production we are going to go for?

3 A. Yes.

4 Q. And is it your view that they should  
5 be established then and provided to the forest manager  
6 so he can then implement them?

7 A. Say again?

8 Q. Those objectives, the forest manager  
9 provides the production possibilities to a society, if  
10 I can use that term.

11 A. Mm-hmm.

12 Q. Society says: Okay, these are the  
13 trade-offs, this is what we, as the owners of the land,  
14 say are the trade-offs that we are willing to accept.

15 They then come back to the forest manager  
16 and say: This is the objectives that we want from the  
17 land base, and that then provides the forest manager  
18 with a clear set of goals for him to achieve without  
19 necessarily saying what the prescriptions are that  
20 should achieve that.

21 Is that your conception of the way it  
22 should work?

23 A. Yes, I think that is a reasonable  
24 way. The owner should be provided with a set of  
25 feasible alternatives, the owner chooses which one of

1       those is to be pursued on the ground, it then becomes a  
2       manner of management implementation to try and  
3       literally make the chosen future unfold, like taking  
4       the actions and trying to control the system.

5               MR. MARTEL:  If I could, before we go any  
6       further, the owner being the state I presume, I mean in  
7       that sense because Ontario is mostly through Crown  
8       management units --

9               MR. FREDIN:  Sorry, Mr. Martel, I can't  
10      hear you.

11              MR. MARTEL:  Oh, pardon me.  The owner  
12      who you've said should make the choices, specifically  
13      who are we talking about, the legislature certainly  
14      couldn't be at open houses, you don't have enough  
15      biologists to understand the system now, they are  
16      certainly not going to understand it 10 years from now,  
17      the general public.

18              I mean it is quite easy to say somebody  
19      is going to do this and it's the owner, and we are  
20      going to do what the owner wants.  If the owner doesn't  
21      understand the process, how do you educate the owner?

22              THE WITNESS:  Partly by offering feasible  
23      alternatives rather than by offering only one thing to  
24      say, yea or nay to.  It seems the structure exists now,  
25      is, you know:  If, if, if.  The structure exists now



1       whereby plans like this could be presented for a  
2       management unit, they have to go through the process of  
3       public hearings and so on. It seems to me that the  
4       process is there for that, if you could get material  
5       into it that allowed a reasoned choice.

6                     It is a high risk in a public approach,  
7       and it is a high risk in terms of what you do in  
8       management, is that they will choose objectives and  
9       means that are inconsistent, so you get an infeasible  
10      solution. There is a very high frequency of that; they  
11      choose good goals and good means, but not necessarily  
12      related to one another. It's very easy to separate  
13      those in discussion.

14                    If you prepared and presented people with  
15      production possibilities, not one, but possibilities  
16      plural, it makes it a lot easier for them to begin to  
17      understand what kinds of things are being traded off,  
18      how they can be traded off, what the range is that they  
19      could reasonably expect given the knowledge of the  
20      system, the amount of money that is being spent to  
21      manage it, and so on.

22                    MR. HANNA: Mr. Martel, if I could just  
23      ask one question...

24                    THE CHAIRMAN: It is your examination,  
25      remember that.

1 MR. HANNA. I volunteered. Like  
2 everyone, Mr. Chairman, I am not trying to maintain  
3 strict ownership.

4 Q. Is it your view that the public have  
5 to be aware of all of the underpinnings of production  
6 possibilities, or is the key thing that the public has  
7 to know is those indicators - I think that is the word  
8 you used - or performance measures that are important  
9 to them, the fish at the end of the line, I think you  
10 used the fishing line analogy or whatever.

11 In other words, do we have to educate the  
12 public to know how habitat supply analysis works and  
13 all the intricacies of the dynamics, or is it what we  
14 present to the public, those things that are important  
15 to them and, on that basis, make a decision?

16 A. Obviously we will never raise public  
17 understanding of resource issues to the level of a  
18 Masters Degree in the resource in question. So the  
19 answer would be, if we wait for that to happen we are  
20 in big trouble.

21 In what experience I have got with these  
22 sorts of things it makes a huge difference when the  
23 decision endurers as opposed to the decision-makers  
24 actually see alternatives that are consistent, so they  
25 can say: These actions lead to these results, but here

1 is a different set of actions which lead to a different  
2 set of results, because they want to choose either  
3 results or actions. They have both in their mind and  
4 they are looking for a set that comes closest to what  
5 they want.

6 Where things come unglued is if they can  
7 pick actions and results independently, then we get a  
8 goal that, in fact, can't be achieved with the means  
9 that have been prescribed.

10 So if you present the two together in  
11 several combinations I think that the public learns,  
12 the part of the public that is really interested in  
13 this - and it's a large part - learns very rapidly, but  
14 you have got to present it to them formally, not  
15 through glossy ads on television.

16 Q. When you say 'informally' --

17 A. No, formally. You have to present it  
18 to them formally, in formal form.

19 Q. What do you mean by a 'formal form'?

20 A. As an actual management strategy with  
21 actions and outcomes listed on a page perhaps.

22 THE CHAIRMAN: As part of a draft plan,  
23 is that what you are saying?

24 THE WITNESS: Yes.

25 THE CHAIRMAN: So you are presenting a

1 plan --

2 THE WITNESS: That had four alternatives  
3 in it that were biologically consistent.

4 THE CHAIRMAN: And what if in doing that  
5 the public, or whoever is reviewing it, looks at the  
6 actions and the suggested results but don't agree that  
7 those actions will get you those results because, of  
8 course, the results are somewhere off in the future and  
9 you're presenting: That if you take these actions,  
10 this is the expected result.

11 And somebody else looking at it may say:  
12 Well, that is what they think, but I think that if you  
13 take these actions you will get a very different  
14 result.

15 I mean, that's I think what you are  
16 assuming in presenting these suite of choices is that  
17 everyone agrees that the two things that you put  
18 forward for each choice will, in fact, be what you  
19 suggest.

20 THE WITNESS: Actually I would take what  
21 you suggested and say that the probability is one, that  
22 in fact the first reaction will be that those actions  
23 will not lead to that, and that's where the learning  
24 process begins, right there.

25 And it is really crucial that we find a



1 way to get that kind of learning, that we can't simply  
2 pick actions or results and not look at the biological  
3 linkage inbetween them. It has to happen, and I  
4 have -- boy, I have got enough experience in this to  
5 know that the first thing that is going to happen is  
6 that they will say: Don't do that, and they will want  
7 to pick the -- the public in general will want to take  
8 actions and they will say: I'll have these actions,  
9 but I want these results.

10 THE CHAIRMAN: So what do you do, do you  
11 sort of make it an either/or; do you say: Look, these  
12 are your choices, you have four choices and four  
13 combinations, you can't mix and match, your choice is  
14 to is pick one or two, or whatever, of these  
15 combinations, that is all that is up for grabs in this  
16 plan. Is that the way you put it?

17 THE WITNESS: I wouldn't hesitate to try  
18 that, but in each case with it laid out that: Here are  
19 the measures of progress, so that you invite people to  
20 see when there will be an assessment of whether or not  
21 those actions are leading to that.

22 THE CHAIRMAN: That goes back to Mr.  
23 Hanna's questions to some extent. You may have to go  
24 beyond just giving them the conclusions and explain why  
25 if you pick that action you are going to likely get

1       that result, because there has been five studies done  
2       that basically lead to that result; would that not be  
3       reasonable?

4               THE WITNESS:   Yes.   There are enough  
5       people interested in what we do in public property in  
6       our society who will want to go and see how you made  
7       that linkage, and I guess my whole argument here that  
8       has to do with using a systematic forecasting procedure  
9       is that you can lay it out and say there they are,  
10      there's the cause/effect connection.

11             If you want to change one of those things  
12      and get from this set of actions to a different set of  
13      results, you have got to change some of the  
14      cause/effect connections, now which one will we change;  
15      it's that simple.

16             THE CHAIRMAN:   So that has got to be in  
17      the context of what we are looking at the background  
18      documentation to the proposed plan?

19             THE WITNESS:   Yes.

20             THE CHAIRMAN:   And all of the studies  
21      that support those choices.   So that if somebody wanted  
22      to go beyond what is said in the plan in terms of  
23      conclusions, they can trace it through, that's your  
24      traceability doctrine or whatever you call it?

25             THE WITNESS:   I use the word

1 transparency.

2 THE CHAIRMAN: Okay.

3 THE WITNESS: I encountered it first  
4 dealing actually with industry people where if you gave  
5 them a solution to their problem they just showed you  
6 the door.

7 If you offered them the solution with:  
8 Here is how we arrived at this in a form that they  
9 could quickly look through it and say: Aha, yes,  
10 that's an action that's within my ability to take and  
11 it is a reasonable cost and I can believe these  
12 connections would lead to that, and I think I would  
13 like a little more or a little less; but, yeah, we will  
14 start.

15 But if it's not transparent, if you put a  
16 black box out there that says this is truth and light,  
17 believe me, it won't work, not in our society. And I'm  
18 kind of glad it doesn't, actually.

19 MR. HANNA: Q. Dr. Baskerville, in your  
20 experience in following through this type of process,  
21 the first time through is it your experience that  
22 people tend to look very carefully at that systematic  
23 analysis and, if you will, satisfy themselves that they  
24 can live with the cause/effect linkages that are  
25 systematically laid out but, in subsequent analysis,

1 once they have satisfied themselves that they can live  
2 with that, they then can spend much more of their time  
3 constructively dealing with the trade-offs as opposed  
4 to dealing with the underlying assumptions?

5 A. I think that's a fair statement.

6 Both things happen though. In timber, where there is a  
7 little bit more history to look at, once people begin  
8 looking at production possibilities they go back, both  
9 after five years when they make an evaluation they  
10 start looking both at how well have we done relative to  
11 what we could have done, did I choose the right one,  
12 maybe I will change the goal and, at the same time, do  
13 I really -- has what has happened caused me to give a  
14 little more credibility to my cause/effect connections  
15 in the forecast.

16 They go back to both things. And you  
17 couldn't -- I don't think you could prevent them. Once  
18 they've tried that sort of thing, they say: Ah, I have  
19 a better understanding of what I might get now. You  
20 can see that clearly in industrial and provincial  
21 managers where they have used things like timber supply  
22 analysis, you can actually watch that happen.

23 Q. So that you still always want to  
24 check those linkages, but the level of effort that  
25 needs to go into that gradually diminishes over time to



1 sort of a base level; in other words, you keep  
2 fine-tuning it, but you don't have to go through and do  
3 a full-scale re-evaluation?

4 A. If you recall, I spoke of  
5 sensitivity. If you've done that, what you will do is  
6 focus your interest on the things -- the places where,  
7 in your forecast, your biological characterization of  
8 the system, the places there where error could get you  
9 in big trouble, and if you focus on those you won't be  
10 trying to learn all about everything, you will be  
11 trying to learn a lot about the things that could --  
12 where error could cause you the most grievous harm.

13 Q. Can we look back at the audit or one  
14 audit point. It's on page 71, the last sentence -- or  
15 the last paragraph under the SLUP/DLUG section, and I'd  
16 just like to get clarified what you meant by the third  
17 sentence there where it says:

18 "In any event, this not need be a major  
19 concern because the real value in the  
20 SLUP/DLUG process lies in the provision  
21 of local guidelines (in the best sense)  
22 for dealing with constraints and concerns  
23 in the pursuit of real resource  
24 management design and implementation at  
25 the management unit level."

1 I'm interested in knowing what you meant  
2 by the 'real value' and how that relates to the  
3 remainder of that sentence?

4 A. Those documents wouldn't, in my view,  
5 allow a design of management to actually achieve the  
6 goals, there are some problems in terms of structure,  
7 and that could be something that might be of concern,  
8 but it seemed to me that they had real power in a nice  
9 simple 30 or 40-page document, they offered up some  
10 principles, general principles and some general goals  
11 for a region, out of context mostly with respect to how  
12 you would achieve them, but at least provided anyone in  
13 that area and interested in that area with a general  
14 feel for what might be achievable.

15 I would like to see the basis of the  
16 choices offered, the targets offered and so on, on  
17 better foundation, but at least they were documents  
18 that started people thinking or should have started  
19 people thinking. They are well written documents, in  
20 my view. I found them interesting in that sense.

21 Q. So taking the - what do you call -  
22 paradigm, the adaptive management type of philosophy  
23 that you've brought forward, you would still see a role  
24 for the SLUP and DLUG type of process but you'd rather  
25 see those targets built from the bottom up, but there

1 is an advantage in your view in developing those  
2 regional/provincial type objectives for people to  
3 contemplate and make decisions on?

4 A. That's a fair statement, that if  
5 those had been built so that there was biological  
6 consistency from the level where the actions are being  
7 taken up to the level that's being reported, they'd be  
8 dynamite documents.

9 MR. HANNA: Mr. Chairman, I was going to  
10 go through briefly, and it will probably -- the line of  
11 questioning will be quite brief, but it's a paper that  
12 Dr. Baskerville issued or wrote that is included in the  
13 Panel 12 witness statement entitled: Strategic Impacts  
14 of Failure to Control Competition.

15 I am not sure whether everyone has copies  
16 of it, and I had actually intended to make copies  
17 before we started. It might be appropriate to have a  
18 break, if people don't have it with them, and I will  
19 make copies so that we can refer to it during the  
20 questions, if you want.

21 It's not critical to have it in front of  
22 you. If you would prefer not to break now, that's  
23 fine, I can continue without people having copies.  
24 It's really at the Board's discretion.

25 THE CHAIRMAN: How large a document is

1 it?

2 MR. HANNA: 91 minus 74; what, 17 pages.

3 THE CHAIRMAN: Well, I am sure the  
4 parties will want a copy in front of them as you are  
5 questioning, so we might as well break now so that you  
6 can get the appropriate copies made. I don't know if  
7 we have our --

8 THE CHAIRMAN: I will make copies for the  
9 Board, Mr. Chairman.

10 THE CHAIRMAN: You will get copies for us  
11 as well, okay. We will break for 20 minutes.

12 ---Recess taken at 10:15 a.m.

13 ---On resuming at 10:40 a.m.

14 THE CHAIRMAN: Thank you. Be seated,  
15 please. Mr. Hanna?

16 MR. HANNA: Q. Dr. Baskerville, where  
17 was this paper presented?

18 THE CHAIRMAN: Perhaps we should give it  
19 a number before we --

20 MR. HANNA: You can if you want, Mr.  
21 Chairman. It's in the Panel 12 witness statement, but  
22 if you wish, I don't mind either way.

23 THE CHAIRMAN: Well, I think we would  
24 like to give it a number. Part of the problem when  
25 these are referred to, but they are handed out



1 separately, is we end up with all kinds of paper with  
2 no number on it, we have no idea where it fits in until  
3 we go through our notes. So it's somewhat easier if  
4 they are presented separately if they have separate  
5 numbers. I think we are up to 977, I believe.

6 ---EXHIBIT NO. 977: Document entitled: Strategic  
7 Impacts of Failure to Control  
Competition.

8 MR. HANNA: I just don't want to get  
9 close to a thousand, Mr. Chairman, that's what I am  
10 concerned about.

11 THE CHAIRMAN: Well, somebody is going to  
12 do it and it won't be the Board.

13 We will have the pleasure of allocating  
14 who pays for the festivities and it won't be designated  
15 as a Christmas festivity either.

16 MR. FREIDIN: I understand that it is the  
17 Board's party if it goes in while the Board's witness  
18 is testifying.

19 THE CHAIRMAN: We'll make sure it  
20 doesn't. Dean Baskerville, you probably weren't privy  
21 to this, but we said at the outset of this hearing that  
22 whoever puts in the 1000th exhibit hosts a party for  
23 all the participants.

24 THE WITNESS: Seems reasonable.

25 THE CHAIRMAN: That was said 18 to 19

1 months ago, so we are now approaching that number and  
2 everyone is getting nervous.

3 MR. TURKSTRA: The last time, Mr.  
4 Chairman, that you and I were in a room with a thousand  
5 exhibits -- I think we hit a thousand; didn't we?

6 THE CHAIRMAN: We did.

7 MS. SEABORN: Did you have a party?

8 MR. TURKSTRA: It cost me more than a  
9 party.

10 MR. HANNA: Q. Dean Baskerville, can you  
11 explain where this paper was presented?

12 A. It was presented at a seminar on  
13 herbicides and forest renewal of the Canadian Council  
14 of Resource and Environmental Ministers. What you have  
15 appears to have been photocopied from the proceedings  
16 of that meeting. That was held in 1984.

17 Q. Without going through the paper in  
18 detail, can you just give us a brief overview of what  
19 the thrust of, the message that you were giving?

20 A. The intent of the paper was to show  
21 how individual actions at the stand level accumulated  
22 or did not accumulate, as the case was, to the forest  
23 level: What was the -- how did you get from a stand  
24 level action to a forest level impact of that action.

25 And I used a set of simple wood supply

1 forecasts with and without herbicides in plantations  
2 because that was the topic I was given to deal with,  
3 and it shows that if you alter the yield curve at the  
4 stand level, either by planting or by planting and  
5 weeding, or by planting and not weeding and so on, that  
6 the impact at the forest level in terms of total  
7 harvest over time is influenced.

8 Q. On page - I will use the large  
9 numbers - 180 of your paper.

10 A. Okay. It's going to be hard because  
11 they are hidden.

12 Q. It's also page 9 of the original.

13 A. Yes.

14 Q. In the second full paragraph there is  
15 reference there to a thing called the annual  
16 allowable -- or excuse me, the allowable cut effect or  
17 ACE. Can you just briefly explain what that means?

18 A. In a forest that had a predominance  
19 of older age-classes, stands that were already old when  
20 you began to manage them, manage the forest, if you  
21 think of it as removing those stands over a period of  
22 time, what you would need to do is remove the existing  
23 mature stands at exactly the same rate at which new  
24 stands -- the regeneration made the equivalent amount  
25 of wood available.

1                   So the issue would be: How do you  
2                   balance the rate of extinguishing existing mature  
3                   stands with the rate of availability of wood from new  
4                   stands coming on line.

5                   That is in fact what a timber supply  
6                   analysis does. When you accelerate, in that case, the  
7                   rate of availability of wood of the renewed stands,  
8                   what in fact happens is that you increase the rate at  
9                   which you can extinguish the existing mature stands.

10                  THE CHAIRMAN: To keep in balance?

11                  THE WITNESS: To keep in balance. So  
12                  that instead of planting and waiting 40 years to cut  
13                  the first plantation, as soon as you start planting and  
14                  make forecasts into the system of earlier wood  
15                  availability, the amount that you can harvest over a  
16                  period of time rises and that increase over the normal  
17                  level is called an allowable cut effect.

18                  THE CHAIRMAN: But you would want your  
19                  addition to the system to be at the free to grow stage;  
20                  right, so that you know that that new wood is actually  
21                  going to come on line?

22                  THE WITNESS: Yes, you sure do, because  
23                  in fact what you are doing is you've introduced the  
24                  stands that are planted into the harvest schedule at an  
25                  earlier time than regeneration stands would have



1 appeared. If in fact they do not produce in  
2 accordance, follow the yield curve that you've put them  
3 on, you run the certainty of a wood shortage when those  
4 stands come up in the queue.

5 THE CHAIRMAN: And it's too late on the  
6 other side because you have already cut?

7 THE WITNESS: You got it.

8 MR. HANNA: Q. Dr. Baskerville, is that  
9 what you are referring to on page 11 in the second full  
10 paragraph when you mention:

11 "Clearly allowable cut effect has  
12 substantial risks inherent in it."

13 A. Yes.

14 Q. Those are the risks?

15 A. Mm-hmm.

16 Q. Now, the allowable cut effect is a  
17 way to, if you will, rationalize silviculture  
18 investments because you are able to get the wood out,  
19 you are able to get the benefit of your silvicultural  
20 investment through the wood that you can -- the  
21 additional wood that you can harvest; is that correct?

22 A. That's a common way that it has been  
23 used, yes. Because you get an immediate increase in  
24 the harvest level from the whole forest, you can write  
25 off the cost of your silviculture, your planting,

1       against that in the current year. From an investment  
2       point of view, that has been used to make this an  
3       attractive proposition.

4               THE CHAIRMAN: But would not the cost of  
5       your silvicultural efforts be amortized when you make  
6       the expenditure in any event?

7               I mean, surely companies - I don't know  
8       much about accounting - but surely companies don't  
9       intend to write off the entire amount of their  
10      silvicultural investment in the one year if the results  
11      of that investment -- and in fact there may be  
12      adjustments if they don't reach the free to grow status  
13      because they are going to have to, at their expense,  
14      make good on what doesn't grow or what fails to reach  
15      free to grow status. Wouldn't they amortize those  
16      costs normally in terms of the way they would account  
17      for the expenditures?

18              THE WITNESS: I couldn't answer that in a  
19      general sense. The examples that I have had an  
20      opportunity to see is that there is a tendency to treat  
21      these things as costs in this year and not really as  
22      investments.

23              The only people that I can see that use  
24      silviculture as an investment are economists, but the  
25      people who actually do it treat it as a cost of

1 business this year.

2 THE CHAIRMAN: But isn't that kind of  
3 danger -- I am not saying it is dangerous, but isn't  
4 that kind of unusual, in the sense that you don't even  
5 know what the end value of that investment is because  
6 it's off in the future and it is dependent on markets,  
7 and the value of the wood that you plant in year one  
8 may be worth five times as much in year 80 or five  
9 times as less?

10 THE WITNESS: Yes.

11 THE CHAIRMAN: And if you try and pick a  
12 number in year one as to your cost, you don't really  
13 relate it to the value of that investment; do you?

14 THE WITNESS: There are two things  
15 operating here. Traditionally the economic approach  
16 would be to take the cost of a plantation, to make a  
17 yield curve, and assign a value to that yield curve and  
18 get a net present value for that, and if the net  
19 present value is not greater than the cost of the  
20 plantation, you wouldn't plant.

21 And for any rate of interest larger than  
22 about 4 per cent, certainly any rate that would be used  
23 as an alternative investment, we would never plant  
24 trees if we did it that way. That's an ancient and  
25 venerable idea; in fact, a man named Faustman, a German

1 in about 1849 invented the idea of net present worth in  
2 fact using a plantation as an example.

3 The distinction is that if you did that  
4 for a whole forest you would come to a very different  
5 conclusion. We don't ever expect to plant and recover  
6 the same amount on that -- we don't plant to recover  
7 the amount on that hectare, we plant so that the forest  
8 itself will maintain a certain level of productivity.

9 What ACE does is it raises that allowable  
10 cut effect, it raises that amount of productivity the  
11 same year as you plant, so economists and everybody  
12 agrees that, in that case, if by planting I can achieve  
13 a higher -- instantly a higher allowable cut, then I  
14 should take that allowable cut to pay for the planting.

15 In actual reality, as near as I have been  
16 able to detect it in industry, the way it works is that  
17 it's certainly at the forest level, they don't make the  
18 calculations at the stand level and work backwards, and  
19 they treat them largely as costs.

20 I once went to visit one of Mr. Irving's  
21 foresters in the area of plantation and while I was  
22 waiting in the woods for the forester to come Mr.  
23 Irving himself, K.C. Irving, driving a window van  
24 appeared and he stopped and asked who I was.

25 THE CHAIRMAN: Get off my land type



1        thing?

2                    THE WITNESS:  No.  I told him and his  
3        response was:  So you have come to see my trees.  He  
4        wanted to know why I was there and I explained I'd  
5        come, I was interested in stand density and I wanted to  
6        meet one of his people, and after a while he went and  
7        told the people to take the window van away and he  
8        stayed, and then his forester came along and the three  
9        of us filled all the available pieces of paper that we  
10       had with whatever it was I knew about the stand density  
11       and responses.

12                   In the discussion I asked him what  
13        interest rate he used when he made his calculation of  
14        net present value for all these plantations that he had  
15        put in, and he hesitated for a moment and he turned to  
16        the forester and he said:  Mr. Krieberg, we should work  
17        that out some time.  And I thought, oh, he is putting  
18        me on.

19                   And in the course of the conversation  
20        that followed I got a lecture on the fact that he was  
21        in the forestry business, not the pulp and paper  
22        business, that the enterprise was at a level at which  
23        he made his evaluation of whether or not planting  
24        worked, not at the hectare, not even at the forest, but  
25        if by planting he made the whole enterprise more

1 profitable then he planted. He had discovered the  
2 allowable cut effect roughly 11 years before it was  
3 written up in the literature.

4 MR. HANNA: Q. Dr. Baskerville, the net  
5 effect then of the allowable cut effect is that the  
6 costs borne by the party undertaking the silvicultural  
7 activity is actually reduced, the costs they really  
8 see, because they can net off that additional wood they  
9 can cut?

10 A. That's correct.

11 Q. And, therefore, there is more  
12 resources available to invest in silviculture if you  
13 have a fixed pot. I'm assuming that is a fixed pot.

14 A. There is more resources to invest in  
15 alternative uses, not necessarily silviculture  
16 unfortunately.

17 Q. But it has the potential of leading  
18 to more intensive silviculture because you are reducing  
19 the cost of silviculture in that way?

20 A. It has that effect and it has the  
21 effect to focus on the quality of the silviculture  
22 tremendously because everything hangs at the period of  
23 time the first one of those plantations or spacings,  
24 whichever it's you are using to attain an allowable  
25 cut, the first time one of those stands comes up in a

1 harvest schedule, if it does not come on line at the  
2 volume and in the piece size that you forecast, you  
3 have a wood supply rupture that's of major proportions.

4 Q. Can ACE be used with an area  
5 regulation system?

6 A. I never thought of that. My first  
7 reaction would be since it's volume flows that you are  
8 controlling it would be no, but there is an equivalent:  
9 You could say that if in fact you are reducing,  
10 shortening the rotation from what a natural stand would  
11 do to what a planted stand would do, there is a  
12 potential, it seems to me, to make an analogous  
13 calculation. I don't believe I have ever seen it done.  
14 The accelerated forest is somewhat analogous to that.

15 Q. I understood the first analogy, I  
16 didn't understand the second analogy. How do you see  
17 accelerated harvest being analogous?

18 A. What it in effect does is shorten  
19 rotation in order to get a higher area of harvest  
20 immediately and that's the same thing. ACE is a  
21 shortening of rotation, a shortening of the cycle time  
22 between when a stand is harvested and when that area is  
23 available for harvest again.

24 THE CHAIRMAN: Mr. Hanna, where are we  
25 going with all this? It is all very interesting, but

1 where exactly are we going with this?

2 MR. HANNA: That's fair, Mr. Chairman. I  
3 was really -- part of it was for information of the  
4 Board, that I just wanted to get this clarified.

5 I had talked to -- in Mr. Galloway's  
6 cross-examination in Panel 12 I had asked him about ACE  
7 and whether it was a permissible technique within the  
8 area regulation system.

9 I wanted to understand, and I think for  
10 my information, to understand how that might be  
11 operative within the area regulation system. I have  
12 now accomplished that.

13 The second matter that I wanted to deal  
14 with is simply that because the silvicultural costs  
15 that may be realized or that may be seen by the manager  
16 of the land, that more intensive silviculture may  
17 result. And the next line of questioning I was going  
18 to follow with Dr. Baskerville: Does that have the  
19 potential of leading to greater conflicts between  
20 timber and non-timber values.

21 So there is two parts to the line of  
22 questioning; one was just to clarify what ACE was, and  
23 the other is to lead to the potential implications of  
24 ACE in terms of greater conflicts on the resource base.

25 THE CHAIRMAN: Okay. Well, let's get on



1 to the second part then.

2 MR. HANNA: Yes, Mr. Chairman.

3 Q. Dr. Baskerville, is there greater  
4 potential for conflicts with some non-timber values  
5 and, in particular, wildlife populations as the  
6 silviculture becomes more intensive, particularly if it  
7 leads to a change in the forest structure that may not  
8 be amenable to some wildlife species?

9 A. It's not clear why simple intensity  
10 of silviculture should change that, should change  
11 habitat availability. It's going to be the type of  
12 silviculture and the response of the stands to it that  
13 will influence habitat availability.

14 If you use a tool like an allowable cut  
15 effect, you literally maximize the rate at which  
16 harvesting is carried out. The progression through the  
17 harvest schedule is as fast as it can possibly be, you  
18 are right at the margin and, given that, the chance of  
19 confronting a problem where you harvest one stand and  
20 then you want to leave other stands around it for some  
21 period of time before you come back - normally known as  
22 an adjacency constraint, you can't cut the next stand  
23 for at least 5 years or 10 years - the problem with  
24 adjacency constraints is extreme.

25 The Province of New Brunswick is using --

1 capturing allowable cut effect right to the hilt. In  
2 order to make everything balance that was necessary as  
3 part of the overall strategy, and I think that most  
4 would concede that it has posed problems with existing  
5 wildlife constraints because of the speed with which  
6 you go through the harvest schedule. There is very  
7 little flexibility.

8 THE CHAIRMAN: But presumably the  
9 constraint is designed to protect the wildlife.

10 THE WITNESS: Exactly.

11 THE CHAIRMAN: Is that not correct?

12 THE WITNESS: Yes, sir.

13 MR. HANNA: Q. But because we are right  
14 at the margin, there is very little flex and,  
15 therefore, the greater potential for conflicts because  
16 there is very little room to move on both sides?

17 A. I think that's a fair statement.

18 Q. And where I am going on this, Dr.  
19 Baskerville, is: My client certainly appreciates the  
20 need to have multiple use on the land base, appreciates  
21 the fact that these conflicts may arise. We are  
22 looking at the ways to not close down forestry, not to  
23 have intensive silviculture, but how to deal with it  
24 the most effective way possible. So that's where I am  
25 leading to.

1                   The reason I am asking these questions  
2           is, if you go back to the habitat supply analysis type  
3           of approach, by setting out very clearly what's  
4           achieved -- what's wanted on the land base and, if you  
5           will, making those trade-offs very explicit, do you see  
6           an advantage in reducing the conflicts as you get more  
7           intensive forestry and more intensive demands from the  
8           land base in terms of wildlife and other non-timber  
9           values by adopting that sort of approach?

10                   A. Adopting a habitat supply analysis?

11                   Q. Or your adaptive management approach  
12           in a broader sense.

13                   A. Actually I think what will happen is  
14           that rather than reduce conflict it will actually  
15           increase the number, but there will be structured  
16           discussions about habitat and response of a population  
17           to habitat instead of vague generalizations about: Are  
18           we doing well or are we not doing well.

19                   THE CHAIRMAN: What do you mean by  
20           increasing the number; what number are you referring  
21           to?

22                   THE WITNESS: The number of conflicts in  
23           both the number of times that somebody is going to sit  
24           down and say: Can we do that and still maintain the  
25           flow of deer habitat and the flow of timber. The

1 number of times when those kinds of issues will be  
2 confronted would probably increase, but the way in  
3 which the conflict would come up would be, I think,  
4 much more structured -- well, it would be more  
5 structured, it would in fact be quantitative and,  
6 therefore, much more amenable to resolution. The  
7 trade-off is explicit, not vague and general.

8 MR. HANNA: Q. Dr. Baskerville, another  
9 issue that is somewhat related to that is the matter of  
10 stand conversions, and you are familiar with the matter  
11 of taking mixed wood sites and trying to increase the  
12 conifer content of stands on mixed wood sites.

13 Is that another example where you are  
14 going to have to make those sort of trade-offs? In  
15 some cases those sites will be designated for intensive  
16 silviculture; in other cases, because they often are  
17 very productive wildlife sites, may be designated for  
18 or given greater predominance for wildlife uses.

19 The conflict resolution type of mechanism  
20 you spoke about, would it also apply in dealing with  
21 those types of issues?

22 THE CHAIRMAN: But won't that be  
23 rectified to some extent if you had applied habitat  
24 supply analysis which then led you to the position of  
25 knowing what type of habitat is required, and if it's a



1 mixed wood requirement for the particular species you  
2 are interested in, then presumably the constraint would  
3 be imposed not to convert to something that was other  
4 than mixed wood, if that was the requirement.

5 THE WITNESS: Yes. In fact, it wouldn't  
6 be a constraint, it would be desirable not to in order  
7 to maintain the other.

8 THE CHAIRMAN: That's right.

9 THE WITNESS: When you harvest a stand,  
10 the development that follows is conditional on  
11 essentially three things: The kind of stand that was  
12 there before, how that stand was cut - whether it was  
13 cut with wheel skidders and chain saws or a shortwood  
14 forwarder or whatever, and what treatments follow.

15 And to use a general generic term like  
16 the area was clearcut and not recognize, for instance,  
17 that the stand had 40 per cent poplar in it, it was a  
18 black spruce stand with 40 per cent poplar, the poplar  
19 is left standing, that's hardly a clearcut, and the  
20 expectation of what will develop following such a  
21 harvest is quite different than if all of the trees had  
22 been in fact clearcut.

23 So that in making generalities about  
24 clearcutting, it quite frequently means that the  
25 currently marketable species -- well, actually that

1 portion of the currently marketable species that meet  
2 market constraints has been cut and removed and the  
3 rest has been left standing. That will have a major  
4 impact on what follows next in terms of stand  
5 development.

6 Now, the issue was whether we are  
7 converting one way or the other, we convert both ways.  
8 The example I gave would convert from a black spruce  
9 stand that was 60/40 spruce/poplar to a stand that was  
10 probably almost pure poplar.

11 It also happens the other way when you  
12 plant and try, in order to keep the plantation growing  
13 well use herbicides to keep out hardwood invasions. So  
14 that both occur. What's important is that both get  
15 recognized in any forecast of forest level dynamics,  
16 whether you are doing it -- making that forecast for  
17 timber or habitat, it's equally important in either  
18 case.

19 MR. HANNA: Mr. Chairman, just so that  
20 you understand, that I was in agreement with what you  
21 were saying and that was the reason I was asking that  
22 question. So I appreciate Dr. Baskerville answering  
23 that. I just want to make sure you understand where I  
24 was coming from.

25 Q. Dr. Baskerville, I would like to turn

1 now to a paper that you produced called: Tools to  
2 Guide our Decisions Reliability. I have copies of that  
3 paper. (handed)

4 THE CHAIRMAN: Thank you. Exhibit 988 --  
5 sorry, 978.

6 DR. QUINNEY: I think we are being  
7 compromised over here, Ed.

8 THE CHAIRMAN: I got a little over  
9 exuberant.

10 ---EXHIBIT NO. 978: Paper entitled: Tools to Guide  
11 our Decisions' Reliability,  
12 authored by Dr. G. Baskerville.

13 MR. HANNA: Q. And I believe, Dr.  
14 Baskerville, this paper was recently presented in  
15 Thunder Bay, last year I believe?

16 A. That's correct, at an Ontario Forest  
17 Research Symposium on forest investment.

18 Q. Now, the reason I wanted to go  
19 through this paper with you is, in our statement of  
20 issues we raised this matter of professional judgment  
21 versus quantitative decision support tools, and I want  
22 to look at this paper relative to the issues that we  
23 have raised in our statement of issues in that respect.

24 Rather than go through this paper step by  
25 step, I think it's probably more expedient if you could  
just give us an overview, and then I would like to turn

1 to the conclusions you have on page 8.

2 But maybe just to introduce it, just a  
3 general description of what the paper covers and the  
4 general message you were trying to present.

5 A. If one picked up a book on decision  
6 theory, a conventional textbook, it would be easy to  
7 get the impression that decision-making could be  
8 reduced simply to gathering data, processing it  
9 according to some established algorithm and comparing  
10 it to some factor like return on investment --  
11 alternative return on investment and then saying yes or  
12 no.

13 The way decision-making is taught  
14 frequently neglects to mention that all decisions are  
15 based on forecasts and that the certainty approach is a  
16 little bit awkward. There is a literature in the use  
17 of decision tools that suggests that they are that,  
18 they are not decision-making devices, they are tools to  
19 assist a decision-maker.

20 The analogue that is used in the paper is  
21 that if you're building boats it would be easily  
22 accepted that tools are used to build boats, but no one  
23 imagines that tools build boats; a craftsman builds  
24 boats using the tools. And the quality of the product,  
25 the boat in this case, will depend on the skill of the



1 craftsman in choosing appropriate tools to use and in  
2 his ability to actually handle them while he is  
3 building.

4 And the point that I was trying to make  
5 in this paper was that we should make as much use as we  
6 can of quantitative decision tools, but we should make  
7 that use in the context of decision-making being a  
8 craft skill rather than, as the literature would have  
9 us believe, a decision science that in fact has  
10 everything nice and firm.

11 I think if I am going to try and  
12 summarize nine pages, that's close.

13 Q. Thank you. Can we turn then to page  
14 8, and I believe you have six summary points there.  
15 The first point I think you touched on; and, that is  
16 tools don't make decisions, the decision-maker makes  
17 the decisions. That's the first conclusion?

18 A. That's correct.

19 Q. The second point is this paradigm  
20 shift that you have been talking about, that rather  
21 than being scared of errors we should embrace errors?

22 A. Yes, that and the decision literature  
23 would also suggest that we rarely make mistakes in the  
24 choice, we make the mistake in the forecasts between  
25 which we choose.

1 Rational men given -- if they had true  
2 forecasts of the future, real, if you could have a  
3 forecast that was totally accurate, we would always  
4 make right choices, but we don't and the error lies not  
5 in the process of choosing but in the process of  
6 generating the forecasts that we choose between.

7 THE CHAIRMAN: But it's the forecast that  
8 leads to the choice; right?

9 THE WITNESS: You bet.

10 THE CHAIRMAN: And so if the forecast is  
11 in error, the choice may be in error?

12 THE WITNESS: Yes, and it won't matter  
13 how much -- how exquisitely you carry out the choice  
14 process, if in fact the forecasts are wrong, you will  
15 still get a wrong choice.

16 THE CHAIRMAN: But what's the choice  
17 process; isn't the choice process between competing  
18 forecasts?

19 THE WITNESS: Yes. The way this most  
20 commonly appears is that people will sit down and worry  
21 for days and months and years about the return on  
22 investment of two alternatives, but those two  
23 alternatives in forestry are based on 50-year forecasts  
24 into the future forest performance, and the percentage  
25 points they are talking about on return and investment

1 would be lost in SLUP and any one of the yield cuves  
2 that's in there.

3 They are worried about the wrong things  
4 all together. If they are going to make a mistake,  
5 it's going to be because the forecasts are wrong not  
6 because they choose the wrong interest rate.

7 THE CHAIRMAN: Okay.

8 MR. HANNA: Q. The third point indicates  
9 that:

10 "Decision guides should not give answers  
11 but they should facilitate the  
12 exploration of the effects of actions of  
13 interest to the user if he is to be a  
14 true decision-maker."

15 Now, putting those words with respect to  
16 guidelines, are guidelines not in a sense an attempt to  
17 prescribe, to give an answer?

18 A. I'm not sure if it's an answer, they  
19 certainly prescribe the action to be taken and in a  
20 sense that's it.

21 THE CHAIRMAN: Well, don't they more  
22 properly describe often a range of actions that may be  
23 taken and prescribe, in a sense, the outer boundaries,  
24 the minimum and perhaps the maximum range of choices  
25 and within those guidelines there is often flexibility

1 to move around?

2 THE WITNESS: That would be a really  
3 comfortable idea of guidelines. The problem arises  
4 when the guidelines are such that they can relieve the  
5 person of any responsibility for the decision. They  
6 are such that I have done this, and that's what the  
7 guidelines said, therefore, I am not to blame, if there  
8 is a mistake here it's the guidelines.

9 The issue that was raised in this  
10 particular paragraph that's been referred to was that  
11 wherever you pre-empt the role of a decision-maker by  
12 saying: Here is the answer, one of two things happen;  
13 if he is a real decision-maker, he simply rejects it  
14 and says: That's fine for you to say that, but I am  
15 going to make a choice. If he is not a real  
16 decision-maker, what he does is accept your statement  
17 because he is then absolved of any responsibility of  
18 choice.

19 THE CHAIRMAN: Yes, but don't you  
20 sometimes need the best of both worlds?

21 If it's an experienced decision-maker he  
22 can reject the guidelines and most guidelines will  
23 provide a deviation procedure; if you want to reject  
24 them maybe you have got to go and get somebody else's  
25 okay and indicate why, that's on the one hand.



1                   On the other hand, you have got the  
2           inexperienced decision-maker and in order to account  
3           for the inexperience you are providing a range within  
4           which the decision-maker can decide without really  
5           knowing intuitively why he should be deviating?

6                   THE WITNESS: I think that that's  
7           certainly the intent of guidelines and when they work  
8           that way they are not unreasonable. When they become  
9           interpreted as rigid rules, then what they do is simply  
10          relieve whoever used them of any responsibility for the  
11          outcome.

12                   THE CHAIRMAN: But there is a margin of  
13          safety in there too; isn't there, in the sense that if  
14          the guidelines are formulated based on collective  
15          experience over a period of time, cause/effect  
16          relationships, et cetera and, therefore, you get what  
17          the guidelines -- what might usually happen out there  
18          is what the guidelines would specify?

19                   You want to protect; don't you also,  
20          against the person that comes in using his own judgment  
21          and going wildly off base; in other words, coming out  
22          and saying: I don't believe in this guideline, I am  
23          going to do something totally different, and I don't  
24          have to follow the guideline. And if he is right,  
25          terrific; and if he is totally wrong you have got a

1 major problem.

2 THE WITNESS: I guess I'm not really  
3 comfortable with the idea that conventional wisdom  
4 because it's conventional wisdom is right.  
5 Occasionally those guys that want to go off actually  
6 have a better idea and it's the ability to distinguish  
7 those.

8 I'm really uncomfortable with the idea  
9 that guidelines do provide safety. They may or they  
10 may not, we really don't know. If you haven't made a  
11 calculation of the -- an estimation in some form of the  
12 connection between a population and its habitat, how  
13 can you assert one way or the other that the guidelines  
14 that you have are adequate? I mean, if you make the  
15 guideline it presumes that you have that knowledge.

16 Now, I like the idea of doing it with  
17 people who have skill, whoever has been out there who  
18 have some craft skill of looking at populations and  
19 seeing their reactions. They are the kinds of people  
20 who draw up guidelines and could use them safely.

21 THE CHAIRMAN: But isn't that sort of an  
22 underlying assumption as to how guidelines are or  
23 should be developed?

24 In other words, before you develop a  
25 guideline you sit down, a bunch of acknowledged experts

1 who have done it many times in the absence of  
2 guidelines, maybe it hasn't been displayed  
3 appropriately, but have made some of those cause/effect  
4 exercises in their minds or completed them and are  
5 relatively assured that because of their experience  
6 this is what will happen, maybe they haven't explained  
7 it properly, and then they formulate a guideline based  
8 on that experience.

9                   Isn't that the way guidelines are  
10 formulated?

11                   THE WITNESS: Yes, and should be applied.  
12 If I could use an example to show the risk, there was  
13 in '86 a guideline that the oldest stands would be cut  
14 first, and I encountered at least one situation where  
15 the unit forester realized that by actually cutting the  
16 oldest stands first he let the stands on the best sites  
17 break up because they grow old faster and break up  
18 quicker while he harvested low volume stands that were  
19 much older on another site.

20                   He knew that that was a silly thing to  
21 do, he should in fact get the stands on the highest  
22 age-class harvested earliest, get that land back in  
23 production. But the next guy up the line, when you got  
24 to the region to approve that, said: You can't do that  
25 because that's not the oldest first, you are cutting

1 80-year old stands instead of 120-year old stands.

2 THE CHAIRMAN: But isn't that the fault  
3 that the guideline is no good? Wouldn't you argue  
4 there that you are saying he should have known he was  
5 wrong and you should always harvest the higher site  
6 class first to get it back into production. Well,  
7 shouldn't that have been reflected in the guideline?

8 THE WITNESS: If you could write the  
9 guidelines so that they contain all of the wisdom, they  
10 would work.

11 MS. SWENARCHUK: Mr. Chairman?

12 THE WITNESS: The difficulty, as I see  
13 it, is that there's a high risk as the bureaucracy  
14 deals with these, not as the unit forester and the guy  
15 in the woods deal with it, but as the bureacracy deals  
16 with them they are not guidelines because they don't  
17 have the advantage to see why there would be a  
18 deviation; they are not on the ground, they only see  
19 that the guidelines said the largest cut-over should be  
20 120 hectares and here is one that's 150.

21 So it's clearly a violation, simple,  
22 clear, bang, that's the end of the discussion. There  
23 may have been a very good reason for the biologist and  
24 the timber guy to have done that.

25 THE CHAIRMAN: Ms. Swenarchuk?



1 MS. SWENARCHUK: Yes, Mr. Chairman. I,  
2 just perhaps for my own information, would like some  
3 clarification of your last question.

4 Are you proceeding on the assumption that  
5 the evidence in the case discloses that the non-timber  
6 guidelines here were developed on the basis of habitat  
7 population knowledge?

8 THE CHAIRMAN: No.

9 MS. SWENARCHUK: Thank you.

10 THE CHAIRMAN: Just talking generically  
11 about guidelines. I am not relating to specific moose  
12 guidelines, fish guidelines, tourism guidelines or  
13 anything, just generically how guidelines might be  
14 developed to answer some of Dr. Baskerville's concerns.

15 THE WITNESS: That was my interpretation  
16 of your question too.

17 THE CHAIRMAN: Right.

18 MR. HANNA: Q. Dr. Baskerville, the  
19 example the Chairman gave you was the possibility of  
20 having no guidelines with guidelines; in other words,  
21 the inexperienced person coming in, having no  
22 direction, and basically you don't know where he's  
23 going to go and, therefore, you get some protection by  
24 having the guidelines.

25 And I presume you would agree in that

1 case the guidelines are better than nothing?

2 A. Yes.

3 Q. Now, one of the advantages of the  
4 guidelines is that it codifies professional judgment,  
5 puts it in a concise form that can be used to provide  
6 direction to those people making those decisions in the  
7 field, that's an advantage of it; is that correct?

8 A. That's correct.

9 Q. Is that codification not also  
10 achieved if you go the habitat supply analysis  
11 approach; in other words, you go through the same  
12 process except you end up with a different product at  
13 the end of the day?

14 A. That's a fair statement. If you  
15 would use the same people and that what they would do  
16 instead of -- well, some of the same elements of  
17 guideline, adjacency constraints and spacial pattern  
18 would still appear in the same form as they would in  
19 guidelines, but the amount of habitat and its form of  
20 availability would be specifically drawn as a yield  
21 function.

22 Q. Is one of the advantages of that  
23 approach that because you don't have to try to deal  
24 with the generality, the broad diversity of the  
25 situations you run into in the guideline?

1           The guideline says you have to have a  
2   hundred acre clearcut, a habitat supply analysis says,  
3   look at the nature of the land and says, this is what  
4   an appropriate clearcut size would be given the  
5   structure of -- the layout of the land. In that sense,  
6   the habitat supply analysis is more responsive to the  
7   land base itself?

8           A. A habitat supply approach would  
9   result, as does a timber supply approach, in seeking  
10   the actions that in fact cause the results that you  
11   want in the supply and availability of habitat. So it  
12   could come out different than the guidelines, yes.

13          Q. Now, back to where we started in this  
14   whole discussion which was point three on page 8. Do  
15   the guidelines facilitate or does a guideline type of  
16   approach facilitate exploration of the effects of  
17   actions of interest?

18          A. It doesn't preclude exploration of  
19   actions of interest, but it makes it not very  
20   effective. If you are going to explore the impact of  
21   an action, one of the things you would like to do is  
22   say: Get as close as you can to, here is what the  
23   system would do without the action, here is what it  
24   does with it. So that you have a comparison.

25          In any such comparison, no matter how we

1 do it, one side will always be a forecast. If we treat  
2 the stand and come back five years later we will have  
3 to forecast what it would have done if we hadn't  
4 treated it; if we don't treat it and want to make the  
5 comparison, we will have to compare it with... So in  
6 the same place, we can't have both.

7 The issue to me would be not whether it  
8 facilitates or not, but the degree of rigor in the  
9 actual evaluation of those actions is what would be  
10 different. If you just have a general guideline and  
11 say: If I cut larger holes in the forest what will the  
12 impact be, ask a general question, the answer must also  
13 be general.

14 Q. Would the type of habitat supply  
15 model that you have talked about be more attuned to  
16 facilitating this exploration?

17 A. In general, yes, because certainly  
18 with respect to the connections of populations and  
19 habitat, because you are obliged to put them in  
20 specifically, and wherever anyone is obliged to write a  
21 specific form, either they begin -- after they have  
22 written it, if you write an equation or a graph, you  
23 either begin immediately to evaluate it or somebody  
24 else does, and it wouldn't be very long until somebody  
25 would challenge it.



1                   Q. Point 5 is a matter that has been  
2 discussed fairly extensively at this hearing; and, that  
3 is, the concern of ending up with the rulebook that  
4 removes flexibility, removes the ability of the, in  
5 this case I think we are talking about the man on  
6 the -- or the person on the ground. And does the HSA  
7 approach allow or avoid the cookbook format, as you  
8 have laid out here?

9                   A. Not necessarily. If you go back to  
10 my first suggestion that it isn't the tools that  
11 determine the output of a craftsman it's the craft  
12 skill in using the tools the tools that is the key  
13 issue. You could produce a tool which would then  
14 become a mandatory exercise. The way WOSFOP -- OWOSFOP  
15 is used in the management plans of 1986 in fact froze  
16 the process rather than the other way around, there was  
17 one run that said: This is the way it will be, and a  
18 couple of others, but the runs were mandated, there was  
19 no suggestion that the unit forester would explore  
20 --there was a suggestion, but there was no feeling - in  
21 the manual there was - but in the way the process  
22 functioned, only the mandatory runs were put out and  
23 under the interpretation of them was minimal.

24                   The issue isn't what the tool will do,  
25 it's how the tool is used. We need craft skills in the

1 use of the tools. That is the distinction that I would  
2 draw.

3 Q. Okay. And again coming back to this  
4 difficult proposition that I think all the parties here  
5 are faced with, is how to develop those craft skills  
6 through a decision of this Board which is through terms  
7 and conditions. How do you deal with that people  
8 problem, how do you make that happen, how do you  
9 encourage it to happen?

10 A. The problem is one of being on the  
11 horns of a dilemma. If you have people learning to do  
12 something and you are making widgets and they are  
13 trying to learn to make widgets, you run the risk that  
14 if they don't make good ones you sell them, but at the  
15 same time if you don't give them the freedom to learn  
16 how to make them, they will never make good ones.

17 We have the same problem here always,  
18 that no matter how you train a person in university or  
19 elsewhere, when it comes to actually dealing with 100-  
20 or 200,000 hectares of forest, trying to comprehend  
21 dynamics on that scale and reasonably design the  
22 interventions on it, I would argue that that is largely  
23 a craft skill, that management is a craft skill.

24 We can provide the tools, but somehow or  
25 other we have to provide a safe environment for the

1 person to learn how to use those, we don't want him to  
2 make big mistakes, but neither do we want him to be  
3 reduced to an a assembly line processor, it does this  
4 because this the stage that it needs to be done.

5 Because of the nature of systems, we need  
6 the craftsman in there. I don't believe you can manage  
7 renewable resources by an assembly line design.

8 Q. It's not that I disagree at all with  
9 what you have said, the difficult situation I'm faced  
10 with is trying to write a term and condition that would  
11 lead to that. I think we all want to go there, it's a  
12 question of how we get there. I think we all -- at  
13 least I will certainly agree with what you said, I'm  
14 just concerned about how to get there.

15 THE CHAIRMAN: Well, I think I get the  
16 sense, Dean Baskerville, that there is no easy answer,  
17 it's not something that can be automatically  
18 prescribed, certainly you can put in systems where more  
19 experienced people can provide some of the leadership  
20 to the less experienced people, but they have to  
21 actually be out there in the field doing their thing,  
22 gaining the experience using the tools.

23 THE WITNESS: Yes. And preferably under  
24 a responsive evaluation, rather than a definitive one:  
25 Have you done it, the bureaucratic -- filled the

1       bureaucratic role, have to look to see whether or not  
2       they are learning, they are gaining wisdom.

3               It's another area -- well, in fact it's  
4       the same area, I don't think you can make this happen  
5       universally over 48-million hectare suddenly, it has to  
6       grow.

7               MR. HANNA: Q. The adaptive management  
8       type of structure that you have talked about, will that  
9       be an aid to leading to the type of thing that you are  
10      talking about?

11              A. Certainly the authors of it, Holling  
12      and his group, when they wrote the book Adaptive  
13      Environmental Assessment in Management wrote it with  
14      exactly that in mind, it was a system that exposed the  
15      errors of the manager as quickly as possible and  
16      allowed him to develop craft skills as quickly as  
17      possible.

18              Q. Now -- I'm sorry.

19              A. With minimizing the risk.

20              Q. Now, one of the issues that came up  
21      earlier in your examination was the potential of bias  
22      with respect to the unit forester and his tendency  
23      towards perhaps giving predominance to timber values  
24      over other values.

25              And I believe that actually came up as a



1 result of a discussion between you and the Chairman.  
2 And the problem you are faced with when you leave  
3 discretion, in that that allows the possibility for  
4 bias to come in through the decision proces; you'd  
5 agree with that?

6 A. Yes, in fact if you are going to  
7 acquire craft skills, that is a bias and I want it to  
8 come in.

9 Q. Right. Now, if you have clear  
10 objectives set out to guide both the forester, the  
11 biologist and whoever else is involved in that  
12 management process, and their performance is measured  
13 not by what they do but what they achieve, you see what  
14 I mean?

15 A. Mm-hmm.

16 Q. Is the concern of bias alleviated to  
17 a large extent?

18 A. It's alleviated in the sense that  
19 it's exposed, and the most important thing here, it  
20 seems to me, if you want to deal with the potential of  
21 a - well, not a potential - I think if a person works  
22 with a timber management manual, is responsive to a  
23 timber management system, he will be biased in that  
24 direction. If you want to change that, it's to put a  
25 wildlife guy with equivalent sorts of responsibilities

1 for the same piece of ground either in the same office  
2 or right next door, but certainly on the same piece of  
3 ground.

4 Q. And by setting out those objectives  
5 clearly, the concern of, if you will, the public can be  
6 focused on whether those objectives are being achieved,  
7 rather than trying to look over the shoulder of the  
8 manager in every decision he makes. You see the  
9 advantage -- do you see that as an advantage in  
10 approaching it in that way?

11 A. Yes. I think that to the extent that  
12 the focus is on what you are trying to achieve in the  
13 resource, whether it's a level of a population, a level  
14 of timber supply, whatever, to the extent you focus on  
15 that rather than on the individual actions, it's going  
16 to, in the long run, relieve a lot of the anxiety about  
17 the actions.

18 The way that -- what is dangerous is if  
19 you get those two out of the actions and inconsistency  
20 between the actions and the outcome, and the best way  
21 to prevent such an inconsistency is to focus on the  
22 outcomes not on the actions.

23 Q. And within that context then, the  
24 craft skills which you are talking about would be able  
25 to develop, in terms of the types of knowledge and

1 intellect that you have been advocating?

2 A. That they would be able to develop.

3 Q. Yes?

4 A. Yes, it would enhance development,  
5 it's a good environment to learn.

6 Q. A good environment--

7 A. And that's what we are talking about.

8 Q. And good environment to develop those  
9 craft skills?

10 A. Yes.

11 Q. I would like to move now to another  
12 topic if I could, Dr. Baskerville, and that has to do  
13 with the matter of optimization, and I believe you  
14 dealt with this in your audit, and I believe you  
15 indicated that you had some misgivings about setting  
16 optimization -- or the optimization process in one  
17 large black box where no one could see what was going  
18 on; is that correct?

19 A. Yes, I have reservations about that.

20 Q. Now, you did talk on page 71 however  
21 about the need - I believe it goes on to page 72 - the  
22 need to develop optimization tools, and given your  
23 misgivings about having the black box and yet the need,  
24 I think your term is, transparent analyses, I'm trying  
25 to reconcile those statements with the statements in

1 the audit that deal with the need for more formal  
2 optimization within Ministry, and I would like to know  
3 specifically what you had in mind there?

4 A. There are a large number of models  
5 that can be used to determine the optimal harvest and  
6 silviculture schedule and rather than, as I have  
7 suggested earlier, having a person be analytical and  
8 examine himself, design some schedules and test them  
9 and see how the system responds, what these do is, you  
10 say you want maximum timber harvest, minimum cost, now  
11 find me the -- find those for me subject to not having  
12 more than a 10 per cent variation in any five-year  
13 period, say, of the amount of volume harvested.

14 What the optimization routine does is  
15 simply make several thousand or hundred thousand runs  
16 of the model and finds the one solution that in fact is  
17 the best, it is the optimal solution given your  
18 objective function and the constraints you place on it.

19 The difficulty is that the only solution  
20 that the user sees is the last one; there it is, that's  
21 the answer, you have it. You have no idea of what  
22 the -- if you can imagine a decision surface being a  
23 hump, and you have found the highest point on this but  
24 you have no idea of whether you are on a flat surface  
25 or whether you are on the edge of a cliff, so that you



1 have the optimal solution all right but if you miss by  
2 five per cent in annual harvest, one year you might  
3 drop over and the solution not only is non-optimal but  
4 is devastating.

5 Or it may be a very flat surface and you  
6 can't comfortably see those kinds of things when you  
7 make these runs, what you get is the answer and there  
8 is a very high tendency to accept it as that. It is  
9 very elegant, it is by definition the optimal.

10 I guess what I was arguing here and have  
11 argued elsewhere is that a person should be obliged to  
12 do what I would call the timber supply analysis  
13 extensively to get a feel for the response of the  
14 resource to the interventions, and once he has that, if  
15 he wants to use an optimization tool, that's a  
16 reasonable thing to do, but he should understand the  
17 system dynamics before that application.

18 It turns out, I think, that despite the  
19 prevalence of those tools they are not much used and  
20 they are exercised a lot, but in terms of -- the  
21 distinction being that some runs are made and an answer  
22 is laying around someplace, but it always turns out  
23 that the decision maker, whether it's a unit forester  
24 or a timber manager for a company or whatever,  
25 discovers after the run that for some reason or other

1 he doesn't want the harvest schedule or the  
2 silviculture schedule exactly as it's shown, probably  
3 because it doesn't recognize spacial constraints,  
4 but there are other reasons.

5 And then there is -- so you set that  
6 aside and you go out and begin to do something else.  
7 It's a little -- lot more difficult to match up an  
8 optimal solution with the real world than it is one of  
9 the solutions that you would generate by an analytical  
10 procedure. The analytical procedure will build in the  
11 constraints you face in the real world in terms of  
12 tools available, budget available, size of the forest,  
13 access to the forest, roading and a whole bunch of  
14 other things.

15 If those get built into an optimization  
16 routine, they disappear and you can't see what their  
17 impact is. So to learn an analytical approach is a way  
18 ahead of an optimal approach.

19 THE CHAIRMAN: But you have got to have  
20 the right database; right?

21 THE WITNESS: Use exactly the same  
22 database for each one, sir.

23 THE CHAIRMAN: Okay.

24 THE WITNESS: You can take what I showed  
25 on the overhead on Monday and run that in an optimizing

1 routine, it would ask you to state an objective  
2 function, probably in the form of: You wanted to  
3 maximize harvest and maximize, say, mean tree size, and  
4 it would ask if you had any constraints and subject to  
5 the constraints would be things like evenflow, did you  
6 want the same volume every year in the future, if you  
7 can list constraints.

8 And what it would do is find you the  
9 maximum harvest level subject to those constraints, it  
10 would give you the unique answer, but it's highly  
11 unlikely you could implement it because you don't know  
12 the source of the dynamics that underlay it.

13 MR. HANNA: Q. Okay. Now, given your  
14 concerns about the information that is lost through  
15 that formal optimization process, what you were  
16 recommending here then is that that analytical approach  
17 to searching for an optimum be used, but that that  
18 still would be a goal worth achieving -- worth  
19 pursuing?

20 A. Yes. Certainly if you could get  
21 comfort amongst the timber people, wildlife people and  
22 whoever else with the way you characterize habitat  
23 dynamics and timber dynamics, if you get comfort  
24 amongst them in the biological characterization, then  
25 you would be at a point where getting them to sit down

1 and seek an optimal solution -- an optimal trade-off  
2 would be a reasonable proposition, but not before they  
3 had first done the analytical step extensively.

4 Q. Now, what changes, based upon the  
5 process that was in place in '86 when you did your  
6 audit, would be required within the Ministry of Natural  
7 Resources to permit that type of an approach?

8 A. Which type?

9 Q. Your analytical approach of searching  
10 for an optimum in the sense that you have used in the  
11 audit and I believe just recently in your evidence?

12 MR. FREIDIN: I don't think he was  
13 equating the two. I'm getting confused by the  
14 question.

15 THE WITNESS: If I have understood the  
16 question correctly, none. The 1986 manual, as I  
17 understood it and as I understood it from the author,  
18 would have permitted anyone to use those tools in  
19 whatever way they wanted, what it only required  
20 specifically was that they report it in exactly the  
21 format that was specified there.

22 MR. HANNA: Q. Well --

23 A. Yes.

24 Q. I am sorry. In the audit on page 73  
25 you say:



1 "It would be possible to use an  
2 optimization approach but it would be a  
3 drastic departure from the current scheme  
4 of informal qualitative judgment."

5 I'm looking at the second full paragraph  
6 there, second sentence.

7 A. Yes.

8 Q. The drastic departure, I'm confused  
9 by that.

10 A. All right. The issue being addressed  
11 there isn't timber by itself which the manual was what  
12 I addressed, suggested that the integration of the  
13 non-timber values with timber would be optimal in some  
14 way, and my suggestion, what this paragraph that you  
15 have identified refers to is that that would be --  
16 formal optimization would have been a really dramatic  
17 deviation from what was done where people simply placed  
18 constraints on timber for the other values and that  
19 would be -- that's a very different approach than  
20 seeking the optimal production.

21 You would write the production function  
22 as maximize let's say moose population and timber  
23 production subject to, and you would have to put a  
24 trade-off in that said 200 cubic metres per year is  
25 worth one moose per 10 square kilometres, and some

1 other constraints and there is a unique answer to that,  
2 there is a unique harvest schedule, and silviculture  
3 schedule which would generate that.

4 It would have to have the moose  
5 population or the moose habitat function in it as well  
6 as the yield curve, and none of that existed. So that  
7 to use the word optimization or use the word optimum  
8 implies a uniqueness and a balancing which I don't  
9 believe there is any reason to believe exists. It  
10 really is a negotiated choice, but who is to know if  
11 it's optimum.

12 Q. Now, if you had the habitat supply  
13 analysis and the timber supply analysis as we currently  
14 have in the province, not superimposing a formal  
15 optimization process but going through the analytical  
16 type of process, the exploration type of thing of  
17 exploring that surface that you described, that could  
18 be done in that context; is that correct?

19 A. Yes.

20 Q. Could it be done with the guidelines?

21 A. Well, there are no measures of  
22 response. Again, it comes back to, to explore  
23 analytically you must have a direct cause/effect  
24 linkage, this action leads to this effect, and you must  
25 have a way of accumulating those effects from an

1 individual hectare up to the level of the whole forest,  
2 and that is the crucial difference.

3 Q. Do you see sufficient benefit in  
4 having the ability to undertake that sort of analysis  
5 to warrant moving in that direction?

6 A. That requires a prescription for the  
7 entire Province of Ontario. If it were my forest, the  
8 answer is yes, sir. If the province is desirous of  
9 being able to demonstrate closure on a goal -- finite  
10 goals and a management scheme that is designed over  
11 time to bring a system so that the product --  
12 production from that system in deer, moose and timber  
13 whatever else matches some standards, then that kind of  
14 an approach is "the best way" to do it.

15 THE CHAIRMAN: But given the fact that  
16 that wasn't the route chosen essentially, and given the  
17 fact that you are not starting from scratch, you are  
18 not designing a management system from square one with  
19 nothing in place, with no administrative structure in  
20 place and with no guidelines effectively developed and  
21 in place, is it still your view that one should strive  
22 to move towards it, but it would in effect -- or could  
23 only in effect practically be done in an incremental  
24 way starting somewhere with one unit or two units and,  
25 if that is the desire, then building from that as

1       opposed to dismantling the existing system, throwing  
2       everything out and starting from scratch, which may be  
3       a desirous goal but may be an impracticality?

4               THE WITNESS:   Mm-hmm.   No, that is an  
5       easy question to answer.   I would say yes  
6       unequivocally.

7               THE CHAIRMAN:   Yes to what?

8               THE WITNESS:   That you could do -- to  
9       your first question, we can't do it cold turkey, you  
10      can't throw everything out.

11              THE CHAIRMAN:   Okay.

12              THE WITNESS:   The bottom line is, we  
13      never start from scratch.   Just, you know, textbooks  
14      all show it starting from scratch.   We don't ever have  
15      that opportunity in the real world.

16              There is something there, there is a  
17      structure there, it is operating and functioning and  
18      functioning well in some cases, better in others, and  
19      there is a range.   The issue is:   How do we move to get  
20      better, not how do we create a revolution.

21              THE CHAIRMAN:   Okay.

22              THE WITNESS:   And there is no general  
23      reset button on this thing.

24              MR. HANNA:   Mr. Chairman, I'm just about  
25      to start a new topic.   I realize it's a little early



1 for lunch. I'm going to finish today, as best as I can  
2 tell, even with Mr. Cosman undertaking his  
3 cross-examination today also.

4 I think just in the interest of ensuring  
5 that I would like Mr. Cosman, if it's acceptable with  
6 him, to proceed just in case -- I don't want to run  
7 over and then put him in a difficult situation.

8 I'm happy to break my cross-examination  
9 now and have him come in, so I think it might be  
10 advantageous to break for lunch now and I think we will  
11 still be able to get Dr. Baskerville to Banff and  
12 whatever.

13 THE CHAIRMAN: Are you ready to start at  
14 one o'clock, Mr. Cosman?

15 MR. COSMAN: Yes.

16 THE CHAIRMAN: Okay. We will break for  
17 an hour, come back at 1:00, start with Mr. Cosman and  
18 then return to you.

19 Thank you.

20 ---Luncheon recess taken at 11: 55 a.m.

21 ---On resuming at 1:05 p.m.

22 THE CHAIRMAN: Thank you. Be seated,  
23 please.

24 MS. SWENARCHUK: Mr. Chairman, there is a  
25 preliminary matter that arises out of a meeting of

1 counsel last evening that we would like to raise with  
2 you before Mr. Cosman begins his cross-examination.

3 THE CHAIRMAN: Very well.

4 MS. SWENARCHUK: And Ms. Devaul has  
5 copies for us, for your use, copies of the Board's  
6 decision on November 8th on procedural matters  
7 including, I have them here, including the  
8 negotiations. (handed)

9 THE CHAIRMAN: Thanks.

10 MRS. KOVEN: Thank you.

11 MR. MARTEL: Thank you.

12 MS. SWENARCHUK: Now, the concern that  
13 arose when we were meeting yesterday has to do with the  
14 order on page 3, paragraph (d) relating to the final  
15 report to be submitted to the Board after the  
16 negotiations - and other counsel will comment - but I  
17 think I can speak for all of us that - we can just  
18 proceed through paragraph (d), small figure (i) - there  
19 is no concern about obviously including in the report  
20 the issues on which the parties have reached agreement;  
21 nor is there any concern about including in the report  
22 subparagraph (ii), issues where the parties have been  
23 unable to reach agreement.

24 The concern arises with regard to the two  
25 paragraphs inbetween, and the first concern is with

1       respect to including in the report all parties who do  
2       not agree with the specific provision or, as the order  
3       has stated it:

4                "In the event that not all parties have  
5                reached agreement on a specific issue,  
6                then reference will be made to those  
7                parties who do not agree and their  
8                respective positions with respect to the  
9                particular issue in question shall be set  
10              out in detail."

11             And the concern is that in a negotiation  
12     process parties may be prepared to give and take and  
13     advance positions which, if an agreement is not  
14     reached, will not be the position that would be  
15     presented in evidence to the Board.

16             And it's our concern then that requiring  
17     the report to specify that level of detail can in fact  
18     prejudice the negotiations because parties will be  
19     concerned with the possible appearance in the report of  
20     a position which could then prejudice their position if  
21     the issue has to come back to the Board.

22             THE CHAIRMAN: But what about setting out  
23     what your position is at the end of the negotiations at  
24     the time you formulate the report?

25             In other words, without prejudice to

1       whatever position you are taking during the course of  
2       the negotiations, at some point in time, at the end of  
3       the two weeks presumably, there is going to be a  
4       stopping point and either you have reached agreement on  
5       an issue or you haven't reached agreement on an issue,  
6       and if you haven't reached agreement on the issue, we  
7       were suggesting that we would like to know, if you  
8       haven't, what your position is.

9                   MS. SWENARCHUK: Well, in our view it's  
10       most likely that those positions will be as set out in  
11       the draft terms and conditions that the parties will  
12       have filed and which will be providing the focus for  
13       the negotiations in any event.

14                   So that certainly before the negotiations  
15       are conducted an analysis will be done of the various  
16       terms and conditions filed by all parties and  
17       differences will be made clear, undoubtedly the Board  
18       would have done this, it will be done for the parties,  
19       it will be available to everyone including the Board at  
20       the beginning of the negotiations.

21                   Presumably to the extent that the  
22       negotiations do not resolve any particular issue, the  
23       parties' terms and conditions will indicate that  
24       party's position on the issue, and if the party's  
25       position has changed, you know, clearly -- I think you



1 would be provided with changed proposed terms and  
2 conditions from that party.

3 The concern though is with essentially  
4 requiring the report to specify in detail what the  
5 order currently requires. It might amount almost to  
6 those of us who have not yet presented our cases  
7 arguing our case on paper without having had the  
8 opportunity to put before the Board in fact all of the  
9 evidence. So that is the first concern.

10 And the second concern which arises from  
11 the next paragraph, if I can just digress and describe  
12 it this way. As we read it, it would work this way: If  
13 five parties agreed on a particular issue but the sixth  
14 did not and the sixth then decided to lead evidence on  
15 that issue; as we read this paragraph, the five parties  
16 in agreement would be precluded from cross-examining on  
17 that issue. And our concern is that if in fact one  
18 party is going to make one issue an issue in dispute,  
19 that at that point all the other parties may well feel  
20 that their interest requires that they enter into  
21 cross-examination.

22 So essentially we think it would be most  
23 helpful if the requirements for the final report would  
24 of course specify those issues on which agreement had  
25 been reached with proposed terms and conditions

1 attached, and those issues on which agreement had not  
2 been reached and now - this was not specified yesterday  
3 evening - I would suggest that on those issues  
4 remaining in dispute, that the parties positions be  
5 briefly stated, they may well simply be a restatement  
6 of the parties' original proposed terms and conditions,  
7 or they may be amended terms and conditions but, in our  
8 view, that would be the most appropriate scope of the  
9 final report to the Board as it pertains to the issues.

10 THE CHAIRMAN: And we are not going to  
11 get into a situation where each and every one of the  
12 parties, say there is ten parties involved in the  
13 negotiations, on every single issue at least one party  
14 doesn't agree, and then we end up with a situation  
15 before the Board that on every single issue the party  
16 that doesn't agree leads evidence and every other party  
17 cross-examines in the normal fashion, and what have we  
18 accomplished?

19 MS. SWENARCHUK: If that should be the  
20 result at the end of the negotiations, Mr. Chairman.  
21 Unfortunately I think that the rules of natural justice  
22 would permit parties to in fact enter into as much of  
23 an examination of that evidence as they felt their  
24 interest required.

25 THE CHAIRMAN: But that's assuming that

1 the other parties aren't content with the issue, that  
2 is the problem.

3 What we are assuming, that nine parties  
4 have indicated that they don't have any particular  
5 problem with the issue, the tenth party says we do and  
6 we want to lead evidence, and then effectively all the  
7 other nine parties say, and we want to cross-examine on  
8 the evidence led by the party that didn't agree.

9 What the Board was attempting to do was  
10 to say that with respect to the parties that don't have  
11 a problem, why should you go through a  
12 cross-examination.

13 MS. SWENARCHUK: And I guess our concern  
14 in response to that, Mr. Chairman, is that the mere  
15 fact that nine out of ten parties in these negotiations  
16 may take a common position on an issue, is not a  
17 guarantee to the descenting party that the Board will  
18 take the position that those nine parties took.

19 The Board may in fact be persuaded by the  
20 evidence to be lead by that one descenting party, and  
21 that would be the reason why, in our view, other  
22 parties would be entitled to cross-examine on that  
23 proposed evidence.

24 MR. COSMAN: Mr. Chairman, if I may.  
25 This is a matter on which all counsel, after

1 deliberations, have agreed and I support Ms. Swenarchuk  
2 in her submissions to you.

3                   Apropos of the question you asked, which  
4 is why should we listen to the evidence of the nine if  
5 they have already agreed on a certain issue, the  
6 problem is that if the tenth person puts forward  
7 evidence on a particular position which is counter to  
8 the nine, those nine will want to show why that  
9 position isn't tenable and why their position is  
10 tenable, and if they can't cross-examine, it will be  
11 precluded from doing that.

12                   THE CHAIRMAN: And that is all nine or  
13 somebody speaking for the nine that have indicated  
14 agreement?

15                   MR. COSMAN: I think that is another  
16 issue, Mr. Chairman, that goes back to whether there  
17 should be a lead --

18                   THE CHAIRMAN: Well, that may be another  
19 issue, but that may be a compromise position that the  
20 Board would be more amenable to listening to.

21                   And I'm not precluding anything you are  
22 saying, Ms. Swenarchuk, at this stage, but if the Board  
23 could be assured that where there is agreement amongst  
24 other parties on a particular issue but one of the  
25 parties who doesn't agree leads evidence and there will



1 be cross-examination, it would be a significant step  
2 forward, in the Board's view, if there could be a lead  
3 counsel from the ones that agreed acting for the group  
4 who then enters into essentially one cross-examination  
5 to accomplish exactly what Mr. Cosman has indicated,  
6 that they want to show that the party that didn't  
7 disagree's position is untenable, but you are doing it  
8 on behalf of the group, which would then alleviate the  
9 time required to listen to it from the perspective of  
10 each and every other party.

11 Now, that is giving up something on the  
12 part of the parties and giving some responsibility to a  
13 lead counsel to take that position, but the Board's  
14 view would be that, why can't the parties that agree  
15 instruct the lead counsel to include in their  
16 cross-examination their particular concerns.

17 MS. SWENARCHUK: And our short answer --  
18 or my client's short answer to that question would be,  
19 Mr. Chairman, that unfortunately that position ignores  
20 the very wide diversity, sometimes opposite views to be  
21 let on many of the issues by even the nine parties who  
22 might have reached some agreement, that if it were to  
23 come to presenting evidence or cross-examining evidence  
24 on any particular issue, that the nine parties may well  
25 have all agreed for totally different reasons and,

1       therefore, have different approaches to any kind of  
2       cross-examination that would ensue.

3               I think you've hit it exactly, it's  
4       giving up something. In our view it's giving up  
5       something very important, and something that most  
6       likely no other party can do for a party with a  
7       particular position.

8               THE CHAIRMAN: Well, that is the other  
9       view. And I'm not suggesting that, you know, there  
10      isn't some merit to what you are saying, I'm just  
11      saying that's the other side of the coin.

12              MS. SWENARCHUK: Now, if I can just...

13              MS. SEABORN: Mr. Chairman, if I can make  
14      one brief comment. I support what Ms. Swenarchuk and  
15      Mr. Cosman have said. I think the Board should  
16      remember that after the negotiations the Board will have  
17      in front of it a set of terms and conditions from all  
18      parties and, in terms of cross-examination, the Board  
19      will have its usual powers to limit people in terms of  
20      relevancy and limit them even more so than the Board  
21      has had the power to date, I would suggest, because  
22      parties' terms and conditions are in front of the Board  
23      which will give some focus presumably to the way in  
24      which a party in opposition may cross-examine.

25              THE CHAIRMAN: Well, we acknowledge that

1 and, of course, that was part of the purpose to reduce  
2 the repetition, but also part of the purpose in  
3 ordering the formal negotiations were, to the extent  
4 possible, further any agreement that could be reached  
5 by the parties on particular issues, so that they  
6 wouldn't have to be addressed orally, bearing in mind  
7 that those issues are still very much before us in  
8 another form, they are before us in terms of evidence  
9 via the witness statements and other documents and  
10 reports, to a large extent.

11 Well, okay. On this particular issue,  
12 are there any other submissions?

13 MR. FREIDIN: Perhaps I should just go on  
14 record that I support the submissions which have been  
15 made. And I think the very fact that we are going to  
16 be having negotiations might, I think probably will  
17 increase the likelihood of joint counsel or lead  
18 counsel being appointed, because it will be a forum in  
19 which we can all sit around and talk about it. I'm not  
20 saying it's going to happen, I'm saying there is a  
21 chance that that might happen. So at least we can look  
22 forward to perhaps that possibility.

23 THE CHAIRMAN: Okay. And I take it there  
24 is no counsel out there that are taking a contrary  
25 position to what Ms. Swenarchuk has put before the

1 Board?

2 MS. SWENARCHUK: There aren't, but  
3 neither Mr. Colborne or Mr. Edwards was here yesterday.

4 THE CHAIRMAN: Okay.

5 MS. SWENARCHUK: I would just like to  
6 say, as we have said before on the lead counsel issue,  
7 my client for example is a coalition of five  
8 environmental groups, it came together precisely to  
9 prevent the kind of repetitive proceeding that you are  
10 concerned with.

11 THE CHAIRMAN: But surely there is some  
12 areas even within your representing your coalition  
13 that, for instance, coincide with some areas of OFAH  
14 for example.

15 MS. SWENARCHUK: There may be some, there  
16 also are diverging views.

17 What I would suggest, Mr. Chairman, is I  
18 think all counsel are aware of the degree to which the  
19 Board wishes to have this kind of cooperation occur,  
20 and what I would request is that the matter be left to  
21 counsel to do as much as each counsel feels can be done  
22 with due regard to representing client's interest.

23 I think we all, to use Mr. Freidin's  
24 famous phrase, hear you, and can attempt to do that.  
25 We must maintain our positions that for the Board to



1       require it causes us concern.

2                   THE CHAIRMAN:   Okay.   So are you  
3       suggesting then that the second paragraph under sub (i)  
4       clause (d) and the third paragraph be deleted?

5                   MS. SWENARCHUK:   That is our request,  
6       yes.

7                   THE CHAIRMAN:   Is that your request?  
8       Okay.   The panel will discuss this at the next break.  
9       Let's leave it at this, should we decide to do so, then  
10      we would again address your attention to the very last  
11      paragraph of the order in bold.

12                  MR. COSMAN:   Mr. Chairman, just before  
13      leaving that, I part company with Ms. Swenarchuk on the  
14      issue of whether or not lead counsel should be  
15      appointed, but I don't think that that is something you  
16      need to decide at this time.

17                  My suggestion to you is that at the time  
18      of the scoping sessions for given panels, that will be  
19      a time to determine the extent to which there is  
20      commonality and, at that time, the Board can revisit  
21      the issue if it so chose.

22                  THE CHAIRMAN:   Well, you can appreciate  
23      that if the Board were to go along with your request  
24      that it would really be looking vigilantly at any kind  
25      of repetition from any counsel that embarked on a

1 cross-examination that did not bear some significantly  
2 different perspective.

3 In other words, if you are going to go  
4 into the same kinds of questions and even pay lip  
5 service to the fact that you are going it from a  
6 different perspective and that is why you are asking  
7 essentially the same questions, the Board would have a  
8 problem with that.

9 You have to also cross-examine from your  
10 own particular perspective with a view towards  
11 eliciting different information than is already before  
12 the Board, and perhaps you can reach agreement on lead  
13 counsel, where applicable.

14 All right. The Board will certainly  
15 consider that and come back after the next break and  
16 indicate our view on deleting those two provisions.

17 Anything further?

18 (no response)

19 Okay, Mr. Cosman, we are ready for you.

20 MR. COSMAN: Thank you, Mr. Chairman.

21 And I have already advised counsel I am, as a result of  
22 the cross-examinations to date and this morning, going  
23 to be even closer than my original estimate -- or  
24 shorter than my original estimate.

25 THE CHAIRMAN: Okay.

1 MR. MARTEL: You are not finished  
2 already.

3 MR. COSMAN: You are hopeful I'm sure,  
4 but no.

5 CROSS-EXAMINATION BY MR. COSMAN:

6 Q. Dr. Baskerville, I want to address a  
7 few questions to you about the role of the unit  
8 forester, and you have expressed your opinion to the  
9 Board that the unit forester must have a real and a  
10 substantive authority for the management of the unit;  
11 is that correct?

12 A. That's correct.

13 Q. And you have stressed the importance  
14 of professional judgment and professional flexibility  
15 for the unit forester to accomplish his job in a proper  
16 fashion?

17 A. I think that's a fair statement, yes.

18 Q. Now, this implies that the  
19 professional forester has the knowledge and training to  
20 exercise that kind of judgment, and yesterday you said  
21 that foresters are today educated in natural systems  
22 and I presume they are not just educated in how to get  
23 wood to a mill?

24 A. That's correct.

25 Q. I wonder if you can assist us as to

1 the kind of training that a forester receives in  
2 natural systems that puts him in a position or her in a  
3 position to make the kinds of judgments that you refer  
4 to as being important?

5 A. Yes. If the unit forester isn't  
6 allowed to practice he won't learn, but as he begins, a  
7 brand new one, if he is -- if there isn't careful  
8 feedback to the process, then he will learn in a  
9 dangerous manner. So I take the point that a beginning  
10 person will not have all of the craft skills that one  
11 might imagine are necessary in order to carry this out.

12 In terms of training, I believe that it  
13 would be correct to say that any of the seven schools  
14 in this country would provide a forester, graduate  
15 forester with at least a basic introduction to the use  
16 of forecasting procedures of the kind used in timber  
17 supply analysis, that's standard sorts of models like  
18 FORMAN, TIMBERAMS, an optimizing model that is used  
19 frequently, MUSIC is used frequently, FORPLAN. Those  
20 are all models that -- the last three, optimizing  
21 models, which an undergraduate would have some passing  
22 acquaintance with in any of the programs. It  
23 depends -- the amount depends on the individual  
24 program.

25 I think it is fair to say that all of



1 those programs would put emphasis on system dynamics  
2 now as much as on traditional regulation. There  
3 actually was a course, used to be called regulation,  
4 which meant: How do you apply area regulation or  
5 volume regulation. I'm not sure that any -- I'm not  
6 sure a course by that name exists in any program now,  
7 and what has emerged in place of it is usually going to  
8 be something that has to do with analysis of  
9 populations of trees or stands, whichever way you want  
10 to look at it, the principles involved in forecasting  
11 dynamics, whether it's a population of stands, if I can  
12 call a forest a population of stands, and a population  
13 of moose aren't really very different.

14 The degree to which other elements will  
15 have been brought into that forecasting in any of the  
16 undergraduate programs at the present is rather  
17 limited, the limitations being the same ones that we  
18 are talking -- have been talking about for the last  
19 couple of days, that not very many cases exist where  
20 there has been an attempt to make forest level dynamic  
21 forecasts of the non-timber values.

22 To speak to our own program, the student  
23 would be involved, they would see and have at least one  
24 laboratory period, usually a couple, where they  
25 would -- in the sequence that they have gone through,

1 they would have done probably 50 timber supply analysis  
2 by the time they graduated a five-year program, but  
3 they would have done a half a dozen habitat supply  
4 analysis as well in a not elegant model, but a model  
5 designed or a system designed to demonstrate to them  
6 the principles involved.

7 I can't speak to what the situation is in  
8 the other programs on that.

9 Q. How long has the habitat supply  
10 analysis been part of your curriculum?

11 A. The actual use of that sort of a  
12 tool, probably two years. There would have been  
13 discussion of it for quite a bit longer than that, but  
14 the tool, I don't think -- you can't use a full-blown  
15 model really in an undergraduate laboratory situation  
16 because to understand the structure of, say, a 200,000  
17 hectare management unit, to understand that forest  
18 structure and the nature of the forest, the people, the  
19 constraints and the uses on it, would probably take a  
20 couple of weeks.

21 So that we use simplified models, but the  
22 principle is the same, they get an exposure to a simple  
23 model which in fact attempts to forecast -- show how  
24 you could forecast habitat.

25 THE CHAIRMAN: Is that prevalent in any

1 other forestry school that you are aware of where they  
2 use habitat supply analysis?

3 THE WITNESS: I can't really answer the  
4 question. I would be reasonably comfortable anyone  
5 from UBC would have that because Fred Binnell also uses  
6 a similar sort of approach and has published on it.

7 MR. COSMAN: Q. From your experience and  
8 in your opinion, do students graduating at least from  
9 your program have an appreciation of habitat protection  
10 in the forest?

11 A. They will have achieved a passing  
12 grade in a course designed to impart to them the nature  
13 of habitat and wildlife and the nature of the  
14 constraints and, to the extent that that signifies that  
15 they have gained an appreciation, the answer would be  
16 yes. I'm a little uncomfortable as a teacher in  
17 answering yes outright.

18 Q. Okay. I want to go to the roles of  
19 the guidelines, and much discussion has already  
20 occurred on the appropriate role of guidelines  
21 conceptually. And, as I understand your evidence, you  
22 accept the concept of the guidelines but oppose their  
23 interpretation or application in a rigid cookbook type  
24 fashion; is that a fair statement?

25 A. Yes, I would say that was a fair

1 representation.

2 Q. Now, as I understand your evidence,  
3 and perhaps just paraphrasing what you have said, you  
4 have said that for proper forestry management practice,  
5 guidelines must be treated as guidelines not as law.  
6 They are available to the professional forester to be  
7 applied in an intelligent way and you oppose rote  
8 conformity with guidelines. Is that again a summary of  
9 your evidence on that point?

10 A. Yes, it sounds...

11 Q. All right. You had a discussion  
12 yesterday with the Chairman with respect to the role of  
13 other bodies within the political system as appellate  
14 bodies and the example that was used was the decision  
15 of Cabinet to take away a particular tool of forest  
16 management, in this case the application of or the ban  
17 on insecticides.

18 Now, as I understand it, from a political  
19 science perspective you accept the suggestion by the  
20 Chairman that it's appropriate that government, through  
21 an elected cabinet -- government in cabinet can make  
22 that kind of decision, but from a forest management  
23 perspective they should understand the implications of  
24 what they are doing?

25 A. Those two statements together I agree



1 with, yes.

2 Q. So even if the Ministry on a  
3 scientific basis or say this Board on the basis of  
4 scientific evidence before it, decides that the  
5 application of insecticides is an appropriate tool, you  
6 would accept that the MNR political system, the  
7 Minister and cabinet still has the power to make the  
8 kind of policy statement that the Chairman has referred  
9 to?

10 A. I would have to accept it given the  
11 nature of our government. I would have concern again  
12 that if means and ends get separated, it's very easy to  
13 leave a goal in place that is no longer achievable.

14 So that if you remove a tool that is  
15 important in the maintenance of the harvest schedule,  
16 which is what protection does, without altering the  
17 harvest schedule and your expectations from it, it  
18 would be unfortunate.

19 THE CHAIRMAN: But if one of the tools  
20 doesn't sell politically, I'm not sure you can blame  
21 politicians for saying to themselves: We better not do  
22 something that will get us necessarily into difficulty.  
23 I'm speaking as politicians, that is the motivation for  
24 probably taking whatever action was taken.

25 THE WITNESS: I agree. I worked for a

1 politician for three years and he frequently told me  
2 that if I didn't like what they were doing I should  
3 have a look in the mirror while I was shaving the next  
4 morning, that they attempted to reflect what we wanted.

5 MR. COSMAN: Q. Now, I want to talk now  
6 about a range of decision-making between the decision  
7 of cabinet where something on a policy basis for  
8 political reasons might be decided, and on the other  
9 end of the spectrum the professional exercise of  
10 judgment by a forester.

11 So that let's say that there's two, you  
12 have in the first instance that decision made by the  
13 forester exercising his professional judgment and, of  
14 course, the exercise of that judgment may be affected  
15 by a policy that is made by cabinet and has come down  
16 from on high?

17 A. Mm-hmm.

18 Q. But I want to ask you about another  
19 forest management practice and to obtain your opinion  
20 on it. Do you think it would be appropriate in a  
21 proper and good forest management system for a unit  
22 forester, in conjunction with a planning team and  
23 advisors, to make a decision exercising his judgment or  
24 her judgment and then that decision be reversed on a  
25 one-level up appellate basis by a regional bureaucrat

1 applying the guidelines as a cookbook?

2 A. I suppose the simple answer is no,  
3 that that is the inherent risk in guidelines. That  
4 during the audit I saw frequently in the file that --  
5 the correspondence file that from the district to the  
6 region and back and forth, evidence that what was  
7 suggested in say a sivicultural guideline has a  
8 rotation or spacing at which to plant got interpreted  
9 remote from this unit at the region as not a guideline,  
10 so that if the guideline rotation was 95 and you happen  
11 to choose 90 or a hundred are, the region would write  
12 letters back and forth until in fact whatever number  
13 was there became the number that was in the guidelines.  
14 They were no longer guidelines, they were in fact the  
15 way it would be.

16 To the extent the guidelines aren't a  
17 perfect reflection of what is needed in the forest,  
18 that system removes judgment based on the local forest  
19 entering the process.

20 THE CHAIRMAN: Mr. Cosman, in your  
21 example that you put to Dr. Baskerville, are you  
22 assuming or not assuming that the regional director in  
23 that instance is a professional forester in his own  
24 right?

25 MR. COSMAN: I don't think it matters,

1 Mr. Chairman, for purposes of my example. A  
2 professional forester or not, I'm talking about the  
3 situation where someone remote from the on-ground  
4 situation makes a decision applying guidelines not as  
5 guidelines but as a cookbook, as rule or law that  
6 mustn't be departed from.

7 So even if that person was a professional  
8 forester, I would be submitting that that person was  
9 missing the boat to be applying it in that fashion.

10 THE CHAIRMAN: And what if the regional  
11 director was not applying the guidelines in a cookbook  
12 fashion but disagreed with the unit forester, being a  
13 forester himself, and wanted to reserve it?

14 MR. COSMAN: Well, you can get into  
15 specific examples, Mr. Chairman, where there might  
16 be -- I guess what you are then talking about --

17 THE CHAIRMAN: Differences in  
18 professional opinion?

19 MR. COSMAN: Yes, that indeed but then  
20 again, in terms of a good forest management system, you  
21 are talking about the difference in professional  
22 opinion by someone remote from the area of practice,  
23 who is totally unfamiliar - assuming that - with the  
24 ground and the practises in question and the local  
25 situation.



1 THE CHAIRMAN: Okay.

2 MR. COSMAN: Q. And perhaps Dr.

3 Baskerville might add to that, if he feels that there  
4 is something that should be added.

5 A. Certainly in the cases that I  
6 reviewed it was rare that it was an argument of  
7 professional judgment. The reasons for the required  
8 change were always stated as to conform with the  
9 guideline, please change this accordingly.

10 Q. I would like to go now, Dean  
11 Baskerville, to the adaptive management model with  
12 which my clients agree, and I want to refer to the  
13 example you gave yesterday in evidence of the moose  
14 motels as they are so commonly known in the north.

15 In illustrating your opinion about the  
16 constraint management approach you used the example of  
17 the presentation that was made at an International  
18 Wildlife Conference where, as I recall your example,  
19 photographs of moose cut-overs in northern Ontario were  
20 presented but when someone asked whether or not: Do  
21 the moose use these motels, as they were called, no one  
22 knew.

23 Now, as I understand your opposition to  
24 the constrained management approach, it is in the fact  
25 that these are reserves, these moose motels are created

1 with no real knowledge that in fact they benefit the  
2 moose population because there is no measurable way to  
3 determine that.

4 A. Yes, I think that is correct, that  
5 the issue isn't whether or not you create them, but  
6 whether or not you determine their effectiveness, so  
7 that you see whether they are big enough or too big.

8 Q. So on the wildlife management side we  
9 can feel good that there are moose motels, but that is  
10 all it is, a good feeling.

11 A. There is, in my opinion, far too much  
12 of that approach in the way we handle these issues. At  
13 the conference in question the people -- there were  
14 people there who would say they knew that in fact the  
15 moose motels helped the moose, but they were unable to  
16 demonstrate it in any way that would carry anyone else  
17 at the meeting.

18 That is the issue, is whether or not you  
19 can demonstrate these things so that others can gain  
20 from it, rather than simply accept it as a belief.

21 Q. I want to look now at the other side  
22 of the equation. So you have the good feeling that the  
23 moose are being looked after in the moose motels; on  
24 the other side of the equation, the timber side, as I  
25 think you pointed out from your example, the creation

1 of such reserves have an impact on wood costs at the  
2 mill?

3 A. Yes.

4 Q. And I think in your example - and I  
5 don't know if you were referring to any specific matter  
6 or item within your knowledge - you indicated that the  
7 creation of the reserves might have added three cents a  
8 cubic metre to the price of wood and, on the other  
9 side, you really wouldn't know whether the constraint  
10 system was working?

11 A. That particular example had to do  
12 with the handling of deer yards on Crown timber  
13 licences in New Brunswick.

14 Q. All right. And that's a similar kind  
15 every issue?

16 A. Yes.

17 Q. All right. So the point is that any  
18 action such as the creation of reserves or the taking  
19 away of the tool of forest management, clearly has a  
20 cost element to it on the other side of the equation  
21 which, in the forest industry, is translated into the  
22 cost of wood at the mill?

23 A. And I hesitate only because of the  
24 'any action'. I can't think offhand of an action. Any  
25 alteration of traditional pattern, put it that way,

1 will in fact increase wood costs, because the way the  
2 system is structured it is designed to minimize wood  
3 costs. Is that fair?

4 Q. Accepting that. Now, given that this  
5 Board must be concerned about both the socio-economic  
6 environment as well as the natural environment in which  
7 moose live, is it fair to say from your experience and  
8 knowledge that added costs could have an impact on  
9 mills and the forest industry?

10 A. Added cost must have an impact on any  
11 institution or agency. The question again becomes one  
12 of magnitude.

13 Q. And the kinds of considerations, the  
14 kind of considerations of impact that arise from added  
15 costs - and perhaps you in your position as Deputy  
16 Minister had to consider some of these - are the impact  
17 on jobs for mills of added costs; would that be one of  
18 them?

19 A. It's a potential one, yes.

20 Q. And you have the impact on  
21 investments climate, decisions made whether or not to  
22 invest money in a particular province?

23 A. Yes, willingness to spend on  
24 silviculture. There are a number of things.

25 Q. Willingness to spend on silviculture?



1 A. Yes.

2 Q. You have indeed in terms of  
3 socio-economic impacts the potential impact on people  
4 who live in the communities that depend upon the mills?

5 A. Yes.

6 Q. All right. As well as the potential  
7 impact on tax revenues which funds social programs and  
8 expensive computer systems like the GIS system?

9 A. There has to be a linkage through all  
10 of that. The question is: How -- to what magnitude  
11 does it accumulate, is there a linkage, yes.

12 Q. And you can't ignore the cost factor  
13 when you make certain decisions, the costs on the other  
14 side of the equation?

15 A. It's a little bit like the issue of  
16 the stand in a forest, if you increase the cost of  
17 delivered wood from 50 truckloads that are delivered to  
18 a mill out of a thousand or so that come in a quarter,  
19 there will be an impact someplace up through the  
20 system, but when you get it as it's aggregated upward  
21 it will appear smaller, and the question is going to  
22 be: How big is it and what impact does it have, but it  
23 will be there, I agree.

24 Q. Okay. And do you accept as a basic  
25 principle that the manager should know the benefit

1 before taking certain actions?

2 A. The manager certainly should have a  
3 clear picture in his mind of what the benefits consist  
4 of and how they would be received, in what form and so  
5 on before he take an action. To me that is a rational  
6 part of decision-making.

7 Q. Now, with respect to the benefit to  
8 the forest industry and ergo to the people who work in  
9 that industry and work in mills and live in communities  
10 in the north, what would you see as being the benefit  
11 of the implementation of an adaptive management system  
12 for forest management?

13 A. The most important benefit is perhaps  
14 a feel. I believe that it would in time give more  
15 comfort, more security with respect to our ability to  
16 sustain given harvest levels from forests. It would  
17 leave us in a position where we looked at forecasts  
18 that we can run this mill this long on this material  
19 and have greater confidence that that would in fact be  
20 the case than at present.

21 It would remove much of the argument, for  
22 instance, that someone sees a cut-over and on the basis  
23 of the one cut-over concludes that the entire forest is  
24 gone to hell on the hand car. We need -- it is a  
25 process which enhances learning about system dynamics.

1                   So that I would argue that there would be  
2           incremental improvement in the decisions in the sense  
3           that we made wiser decisions with respect to  
4           approaching our objectives but those are mostly things  
5           that have to do with how well the decision-maker  
6           operates, and I think that is the major benefit.

7                   THE CHAIRMAN:   So it's a credibility  
8           benefit essentially to a large extent?

9                   THE WITNESS:   Credibility benefit, even  
10          within an organization, I have watched company  
11          presidents not believe their foresters on timber  
12          supply, this as recently as last summer, then sit down  
13          with them and go through a formal timber supply  
14          analysis and say:   Yes, why didn't you tell me that in  
15          the first place, and off they went on a process of  
16          making some fairly substantial expenditures on  
17          management.

18                   It increases credibility within and it  
19          makes it possible for whoever is the manager to explain  
20          to people outside the agency what it is he's doing and  
21          why and what the outcome is.   I think that increases  
22          credibility generally.

23                   MRS. KOVEN:   But surely, Dr. Baskerville,  
24          you must have companies saying to you:   Well, can you  
25          just tell us more clearly what is it exactly you want.

1 You can talk about the philosophy and you can talk  
2 about credibility and those kinds of benefits, but  
3 surely you must have companies coming to you and  
4 saying: Well, if it's moose you want, we will have  
5 plantations of moose, we will provide moose in the same  
6 way that we provide timber. You know, if it's certain  
7 types of habitat you want, then we will grow it to that  
8 design.

9 It seems to me that - I think I'm  
10 understanding better what you mean by these concepts -  
11 but I'm still stuck in terms of what you see as the  
12 final product or the final understanding that industry  
13 and government and the public would have about how it  
14 all fits together.

15 THE WITNESS: Yes. I guess in answer to  
16 the question, rightly or wrongly, I answered it as if  
17 it were a timber supply issue rather than the broader  
18 issue, but as it happens to use -- to continue with the  
19 same example, it was relatively easy to demonstrate  
20 that the plan that was all written up and approved by  
21 all the appropriate authorities wasn't being  
22 implemented; it was also relatively easy to bring them  
23 back in line, it was as easy as adjusting the plan or  
24 what was happening in the woods, they chose to do a  
25 balance of the two.



1                   And as more than by the way, they had  
2       decided that they wanted to do something on their own  
3       property, this company happened to own about a hundred  
4       thousand hectare of freehold, wanted to do something  
5       about wildlife that would put them in a more positive  
6       light locally, and they acquired a wildlife -- a  
7       forester with a wildlife biologist certificate and, in  
8       fact, are trying to match -- they are trying to, in  
9       their own way, build a habitat supply analysis.

10                  So that term never arose I don't think in  
11       any of our discussions. But that really is what they  
12       are trying to build, they are trying to be able to  
13       demonstrate that the pattern they are creating is in  
14       fact or at least they are attempting to verify that it  
15       does -- isn't deleterious to the population.

16                  And they are doing that not because they  
17       sell wildlife permits to come and hunt on their land,  
18       because there is to them clear benefit in being able to  
19       say that in their annual report.

20                  MR. COSMAN: Q. Dean Baskerville, I  
21       would like to ask you a few questions about trade-offs,  
22       if I may. Now, in the best of all possible worlds  
23       using adaptive management tools and optimizing the  
24       benefits of the forest, I think you have agreed that  
25       there still can be conflicts and there still will be

1 conflicts. Now, the Chairman asked you if you accepted  
2 that some competitive objectives are incompatible I  
3 believe and you agreed with that as well?

4 A. Mm-hmm.

5 Q. Now, I was particularly interested in  
6 the example you used of salmon fishing on the way to  
7 work because you indicated that someone had put the  
8 question to you: Well, how many salmon are you  
9 prepared to give up in order to save a hundred jobs at  
10 the mill. And you said that after some reflection you  
11 were prepared to give up so many salmon in order to do  
12 that.

13 But now let's -- in dealing with  
14 trade-offs, I suggest to you that not all people are, I  
15 would say, as reasonable and there may be one of Mr.  
16 Hanna's clients, not many perhaps, but one of Mr.  
17 Hanna's clients who might say: Well, I'm not prepared  
18 to catch fewer salmon or shoot fewer moose in order to  
19 save a hundred jobs at the mill.

20 I'm correct, am I not - and perhaps you  
21 have already said this and if you have confirm it -  
22 that even using adaptive management tools, there is  
23 still going to be hard decisions like that that are  
24 going to have to be made?

25 A. Oh certainly, but that is true I

1 would argue in any of our social programs. I pay taxes  
2 annually and I do it without crying too hard and a  
3 portion of those taxes go to programs that I do not  
4 believe in, that I would not vote for if they were put  
5 up for vote, but I understand that society at large has  
6 decided that they are needed and I have to accept that  
7 if I want to live in this society.

8 Q. So as I understand your point, that  
9 in the end there will still be the need for trade-offs  
10 but I think, as you have put it, using an adaptive  
11 management system you can arrive at them in a more  
12 reasoned way?

13 A. I would argue that that's correct  
14 because you realize what it is you are trading. That  
15 is the hard part, when you are trading without -- when  
16 you are trading some of these for some of those and you  
17 don't know what some means in either case, or what  
18 these and those are, it's very difficult.

19 When you say how many successful fishing  
20 days are you willing to trade for, then you put it in  
21 the kind of context where I can say: Hmm, I'm not so  
22 sure about that. If you asked me would I accept a  
23 poorer catch/release rate, I might say yes; but then if  
24 you said: By the way, that means to 50 per cent of  
25 what you get now, I would say: Whoa. The difference

1 is qualitative/quantitative.

2 Q. So. For example, in the forest  
3 industry where certain harvesting techniques are used,  
4 using certain sizes of clearcuts as a base, if someone  
5 were to say: We are going to cut the size of clearcut  
6 to 10 per cent of what you have, there is going to be  
7 an attendant cost and in the end society in some means  
8 is going to have to decide whether it's willing to pay  
9 that cost.

10 So that conflict is going to be there,  
11 but from your perspective you may be able to say, using  
12 the adaptive management technique, that it's going to  
13 mean "x" more or "x" less moose and then we can make  
14 the decision?

15 A. I think that that particular choice  
16 would not require an adaptive approach. If you are  
17 managing and have goals where you can see what it is  
18 you are trying to achieve, you should be able to do  
19 that, yes.

20 Q. He. i just want finally to discuss  
21 with you just a few remarks that were put to you out of  
22 an article by Jack Ward Thomas with respect to the  
23 Rules of the Game, Who Pays, was a question of costs.

24 And one of the suggestions of the author  
25 was that you cannot have situations with one competitor



1 being faced with different constraints or costs than  
2 another, and that would be unfair.

3 MR. HANNA: Excuse me, Mr. Cosman, could  
4 we have the exhibit number, please?

5 MR. COSMAN: 975.

6 Q. With respect to the point that if  
7 costs are to be imposed they should be imposed equally  
8 in considering this issue, is it fair to say that you  
9 must consider the international ramifications of any  
10 decision and that you can't look at imposition of costs  
11 within one national boundary as being fair without  
12 looking at the impacts that it's going to have on  
13 industry and the way it operates internationally?

14 A. To make sure I understand, you are  
15 saying that for instance the pulp and paper industry is  
16 a price taker and operates in a world market?

17 Q. Yes.

18 A. All right. So that the answer would  
19 be yes, that if you incur costs they do have to be  
20 borne someplace. Usually what we try to do in our  
21 world is find a way to aggregate costs and benefits so  
22 that they come together someplace at some level of  
23 society and we can say all the people below this level  
24 paid for this and they enjoyed the benefits or had  
25 access to enjoy the benefits thereof.

1                   The point that is being made, as I  
2           understand it, is that the Canadian forest industry,  
3           large as it is, tends to be a price taker and that as  
4           our costs go up we are unable to change the price at  
5           which we sell off shore and consequently the margin  
6           narrows.

7                   Q.   So my point is that that fact has to  
8           be taken into account and it's not sufficient to say,  
9           as long as we impose additional costs equally on  
10          companies all is fair?

11                  A.   That fact will be taken into account  
12          at the industrial level, it's not clear that it has to  
13          be at the social level.

14                  Q.   That's fair enough.

15                  A.   Okay.

16                  Q.   And at the industrial level it may  
17          mean less ability to compete with the attendant results  
18          of that, and if society wants to pay that result, it's  
19          up to society?

20                  A.   Then in that sequence, yes, I agree.

21                  THE CHAIRMAN:   Realizing that there will  
22          be a consequent social cost if industry can't compete.

23                  THE WITNESS:   Yes.

24                  THE CHAIRMAN:   Appropriately.

25                  THE WITNESS:   Mm-hmm.

1 MR. COSMAN: Those are my questions.

2 THE CHAIRMAN: Thank you.

3 Mr. Hanna?

4 MR. HANNA: Mr. Chairman, I would like to  
5 speak to Dean Baskerville now on the matter of  
6 accumulative environmental impacts which was in our  
7 witness statement.

8 I have circulated an article to the  
9 parties that Dean Baskerville wrote on this matter and  
10 I would like to enter it as an exhibit at this time.

11 THE CHAIRMAN: Very well. That will be  
12 Exhibit No. 979.

13 MR. HANNA: (handed)

14 ---EXHIBIT NO. 979: Articled authored by Dean Gordon  
15 Baskerville entitled:  
16 Accumulative Environmental Effects  
17 of Bi-National Perspective,  
Canadian Environmental Assessment  
Research Council conference.

18 MR. HANNA: Q. Now, Dean Baskerville, I  
19 understand that you are or you were on the Canadian  
20 Environmental Assessment Research Council; is that  
21 correct?

22 A. Yes, that's correct.

23 Q. Can you just briefly tell us what  
24 that organization is?

25 A. It's a council that operates as an

1 attachment to the Federal Department of Environment.  
2 The purpose of the Council is to fund research and  
3 environmental assessment.

4 THE CHAIRMAN: What is its relationship  
5 to the Federal Environmental Assessment Review Office?

6 THE WITNESS: It's separate. It's  
7 actually supposed to be outside the department, but in  
8 fact FEARO provides us the secretariat. We operate  
9 from the same offices in fact.

10 THE CHAIRMAN: Right.

11 MR. HANNA: Q. How long have you been  
12 involved with, can I use CEARC?

13 A. Yes.

14 Q. How long have you been involved with  
15 CEARC?

16 A. Almost three years. Actually they  
17 are three year terms and my term is up in January.

18 Q. The paper that we have had exhibited,  
19 979, was prepared as part of your capacity with respect  
20 to CEARC.

21 A. It was at a CEARC sponsored symposium  
22 on accumulative environmental effects of bi-national  
23 perspective, is the title of the conference held here  
24 in Toronto - yes, it was here in Toronto - involved  
25 American and Canadian scientists trying to come to



1 grips with impacts that in fact accumulate in the  
2 system over time, and so that each individual increment  
3 might be acceptable but the accumulation would not be.

4 Q. I want to make sure that we all  
5 understand what accumulative environmental impacts are,  
6 I think you touched on it there. I just want to make  
7 sure that is the definition we are going to use, the  
8 fact that you can't -- they are increment changes,  
9 small changes that you may not see in the individual  
10 situation, but collectively can be significant?

11 A. Whatever the incremental size. The  
12 issue is that they do accumulate. There may be a  
13 diminution of some of the impact, but the net effect is  
14 that the additions are greater than the reductions and  
15 over time the impact accumulates.

16 Q. Now, I would like to go through this  
17 paper with you in some detail, because I think it has a  
18 number of aspects that pertain to this hearing.

19 The first heading that you have after the  
20 problem is the -- or perhaps just before I do that,  
21 with respect to the problem, you have indicated here  
22 that there is a very close similarity between resource  
23 management and environmental impact assessment and the  
24 difficulties you are faced with in terms of  
25 accumulative impacts; is that correct?

1                   A. Yes. In both cases the central issue  
2 is: How do you forecast the impact of some activity  
3 both temporally and spacially, and that part of the two  
4 are to me identical.

5                   Q. Now, you have identified here two  
6 crucial -- what you called "two crucial scientific  
7 issues", and I believe you deal with them each  
8 individually.

9                   Can you just briefly summarize what you  
10 mean here in terms of achieving appropriate design for  
11 quality research and distinguishing different patterns  
12 in which impacts accumulate?

13                  A. It would be relatively  
14 straightforward to get people to come forward and offer  
15 to do research on accumulative impacts assessment  
16 simply by holding up a large bundle of money, the  
17 university research community would come forth quickly.

18                  The question really was faced here -- it  
19 is not as bad as it sounds, the university researcher  
20 must find his own research funding, so they are very  
21 responsive to this sort of thing.

22                  What the CEARC I guess was really looking  
23 for, as was the American -- its American counterpart  
24 which co-sponsored this meeting: How do you ensure  
25 that the research you get addresses the real gut issues

1 here. The issue where there are some controls, where  
2 there is an opportunity to place control. Do we need  
3 research on the rate at which something is  
4 accumulating, the manner in which it is accumulating,  
5 or in the leverage of how you would control the  
6 accumulation. What are the sensitivities in the sense  
7 of the sensitivity analysis that I showed on Monday.  
8 Where are the issues that are most crucial, and how do  
9 you design research which, instead of adding one  
10 decimal point to some constant or some approximation of  
11 damage, actually puts us in possession of better  
12 information on the hows and whys of the occurrence of  
13 the damage. It is the mechanism that we need to  
14 understand as well the measure.

15 We need accurate forecasting of how it is  
16 occurring, not precise measure of what has occurred.  
17 Well, I guess it is a balance between the two, that is  
18 what the "quality research" referred to. I forget  
19 actually to what the patterns of impact referred.

20 Q. Let's deal with the quality research,  
21 we will come to the patterns in a moment.

22 A. Actually that was temporal and  
23 spacial accumulation, I do recall now.

24 Q. Can you give us some examples so the  
25 Board has some context within the questions that we



1 have before us here, types of what you would envisage  
2 as accumulative impacts that might be associated with  
3 timber management?

4 A. The ones that we most commonly hear  
5 about would be things like insecticide burden, change  
6 in species mixture, those two are a potential. The  
7 idea that we would, in fact, while following all  
8 appropriate guidelines, drive a system, a forest system  
9 to a state where it was no longer suitable for some  
10 species of wildlife. Those are the kinds of things  
11 that I think -- those are kinds of examples that would  
12 be most commonly brought up.

13 Q. Now, on page 10, we are still dealing  
14 here with the design and quality research element of  
15 the two elements that you have identified here. On the  
16 first paragraph on the right-hand column on page 10,  
17 the second sentence indicates:

18 "Since improper or inadequate bounding  
19 is frequently cited as the Achilles heel  
20 of environmental impact research, let us  
21 examine briefly the difficulties of  
22 applying these simple and obvious rules."

23 What you do you mean by the Achilles heel  
24 of environmental impact assessment research?

25 A. To answer I would have to explain



1        what is meant in that sentence by "bounding". In fact,  
2        what we have talked about in these last few days is  
3        largely bounding.

4                There are two ways in which when you  
5        approach a natural system that you bound it, you bound  
6        it spacially: What area am I actually talking about,  
7        what is the area upon which I am going to invoke a  
8        management action to get an impact or do something  
9        which causes what we would call an environmental, an  
10       accidental, a side effect impact.

11               There are two issues here: One is the  
12       actual size, total size that you are looking at, bound  
13       the area as to its magnitude, and to the resolution  
14       within it, what is the smallest unit within a  
15       management unit -- smallest area within a management  
16       unit that is recognized for the purposes of  
17       understanding and managing. And the example I have  
18       chosen would be a stand. So it would be something of  
19       the order of 10 to 100 hectares.

20               The other issue of bounding is over what  
21       time period, how far am I looking forward in time, what  
22       is the outer bound; am I going to look 10 years or 50  
23       years?

24               And the second issue is the analogue of  
25       the stand. What time resolution within that do I

1 expect to be able to see these things, every one year,  
2 two years, every five years, every 10 years.

3 Those two issues of bounding in space and  
4 bounding in time are crucially important in either  
5 forest management or environmental assessment because  
6 they largely determine the effectiveness of your  
7 feedback group. If you bound over time too long or too  
8 coarsely you will miss fluctuations in the system. If  
9 you bound an area too broadly without internal  
10 resolution you will average things you should catch out  
11 of existence.

12 In fact, the first step of any modeling  
13 exercise is to establish temporal and spacial bounds,  
14 and that is what is referred to there. And when the  
15 analyses that -- the papers that were provided in  
16 advance of this thing actually demonstrated that we --  
17 our most frequent failure in these things came from  
18 weakly bounding either temporally or spacially the  
19 nature of the impact we were talking about.

20 We spoke Ontario, when we really meant  
21 this clearcut at this place right beside Hearst today  
22 on the Nagagami River, right there, that is where it  
23 is; that is the one, yet we talk Ontario.

24 That kind of elasticity is the source of  
25 most of the confusion, not in my view alone, but in the

1 view of others who spoke at this thing, of argument  
2 about the efficacy of assessment.

3 Q. In the next paragraph there in the  
4 right-hand column at page 10 in the middle it talks  
5 about the classic research approach.

6 A. Yes.

7 Q. And I believe you conclude that this  
8 leads to, your words are, "wallow in ambiguity". Could  
9 you explain to me how those are connected, what you  
10 mean by that paragraph?

11 A. The resource management and  
12 environmental management and assessment share in common  
13 in the scientific community some suspicion of the  
14 scientists that work in it.

15 We do not use traditional experimental  
16 science the way a chemist would in a laboratory, and  
17 consequently we are really not real scientists. The  
18 issue that is being approached here is the absolute  
19 inability at the scale we are interested in for these  
20 things of carrying out the definitive experiment.

21 The example that was used at this  
22 conference, if I recall correctly, was that there is a  
23 very simple and straightforward way to determine the  
24 impact of a meltdown of a nuclear reactor. What you do  
25 is you get six or seven of them and you invoke

1       meltdowns in five of them under varying conditions, but  
2       keep one as a control and assess the influence on what  
3       happens.

4                       And we laugh, and yet the inference in  
5       much of the scientific argument against impact  
6       assessment and resource management is that you have not  
7       done that. Most of the experiments that you would need  
8       to do in natural resource management and in assessment  
9       are, in fact, unthinkable experiments, they are  
10      precisely the things we do not want to happen.

11                      There is a school of thought that argues,  
12      and I guess I am reflecting it here, that we want to  
13      keep those things forever in the land of probability  
14      and not in reality. What that means is that impact  
15      assessment and wildlife -- wildlife, I heard that so  
16      much today, the resource management in general, those  
17      two areas, will forever be dealing with forecasts, and  
18      if we are real lucky we will not have to deal with  
19      reality.

20                      Q. In your own personal experience as a  
21      member of an academic institution have you run into  
22      difficulties in trying to invoke this type of research  
23      that does not follow the classic pattern?

24                      THE CHAIRMAN: What is the particular  
25      relevance of whether he has or has not?



1                   MR. HANNA: I think the point, Mr.  
2           Chairman, there is that there is a resistance out there  
3           to undertake the type of whole system analysis, I think  
4           it will be evident as we go through this, and I think  
5           it is important for the Board to realize that when we  
6           bring our case forward dealing with the types of  
7           analysis that are required to deal with cumulative  
8           effects in timber management.

9                   It is somewhat the same problem as Dr.  
10          Baskerville has talked about in terms of the people  
11          problem with bringing in adaptive management/habitat  
12          supply analysis. There is a resistance out there to  
13          what, I believe, we will see later in this paper, I  
14          think you call it "toy research", Dr. Baskerville, is  
15          that the right term?

16                   We will get to it anyway, but that type  
17          of analysis which is simply for the Board's  
18          attention --

19                   THE CHAIRMAN: Well, without going  
20          through it all, can we get from you -- Dr. Baskerville,  
21          do you agree that there is some resistance to research  
22          which does not allow an imperical proof of what the  
23          research is trying to accomplish?

24                   THE WITNESS: I would not say there is a  
25          resistance to it, there are many people willing to

1 undertake it; there is a resistance to accept it in the  
2 classic literature as being really good science.

3 THE CHAIRMAN: Thank you.

4 MR. HANNA. Q. Now, on page 11 you lay  
5 out different ways to go about trying to come to grips  
6 with these problems that have these spacial and  
7 temporal characteristics.

8 And I believe you have got four  
9 combinations, and perhaps you could just explain for  
10 the Board what you mean by "real" and "toy", as  
11 explained under that heading "Real, Toy And  
12 Scientific.." on page 11.

13 A. I think it's simplest if I have this.  
14 This was not original with me, two authors, Sprague and  
15 Sprague wrote a paper in a journal called "Interfaces"  
16 which is the only journal I know that is intentionally  
17 designed to take pure science and link it to pure  
18 application, its whole purpose is to be right in the  
19 middle and it's kind of fun reading.

20 What they were saying was that problems  
21 can be divided into real problems and toy problems, and  
22 you can imagine what real problems might look like and  
23 toy problems are imitations of them.

24 But that researchers one way or another  
25 had also divided their view of the world into toy

1 research and real research, so that what you wind up  
2 with are four possibilities here. And what you would  
3 really like to get is real research on real systems in  
4 a perfect world, but many of those are the class of  
5 events that we don't ever want to do an experiment with  
6 that I spoke of earlier.

7               We cannot -- for instance, the issue  
8 raised in earlier discussions here, shut down half the  
9 mills in the Province of New Brunswick or cut them in  
10 half in size by virtue of forest management to run a  
11 20-year experiment to see what it does on unemployment.  
12 It would be the logical scientific way to discover it,  
13 but it is not an experiment that is acceptable. So  
14 that would be an interesting area, but it is really not  
15 one we can work in.

16              We are not really -- wouldn't really want  
17 to do toy research on toy problems. Toy research being  
18 research that does not have all of the elements of a  
19 classic hypothesis with a systematic test data  
20 gathering and a conclusion, the hypothesis is accepted  
21 or rejected.

22              So that leaves us in the real world  
23 either doing toy research on real systems or what is  
24 the other option here, real research on toy systems.  
25 Which way do we go? Do we do a real experiment on a

1 model of the real system, or do we say that we will do  
2 a lesser experiment, something that is not rigorous on  
3 a real system?

4 It turns out in the end that we wind up  
5 really in this one, that the place where we can do  
6 research is to try and model the systems, and that's  
7 why the authors of this chose those terms to be  
8 perjorative; in fact, they wanted to, because of the  
9 nature of the journal they are writing, to be as  
10 insulting as they could to the pure scientists and to  
11 the purest on either side.

12 So that's the origin of them, and what I  
13 was speaking of in the paper was that, in essence, that  
14 our choices are really to do research that does not  
15 meet the standards of the Canadian Journal of Forest  
16 Research, or of science or nature, we can do that on  
17 the real system, but it won't get into those journals,  
18 or we can do a piece of real research, but it will be  
19 on a model.

20 And either of those is truly satisfying,  
21 but it is, in fact, in this society what we are left  
22 with for issues of environmental management,  
23 environmental assessment and research management.

24 THE CHAIRMAN: But even in, say, the  
25 field of medicine, isn't essentially all drug research



1 doing just that; you are applying a real research  
2 methodology on not a toy but on animals --

3 THE WITNESS: Yes, on a mouse.

4 THE CHAIRMAN: Right. As opposed to  
5 people because you do not like the result, if you are  
6 wrong, on the person?

7 THE WITNESS: Yes.

8 THE CHAIRMAN: But is that not accepted  
9 as authentic scientific research?

10 THE WITNESS: It sure is. I didn't say  
11 there was consistency here in the research community.

12 MR. HANNA: Q. Dr. Baskerville, that is  
13 why it is called "real research" even though it is a  
14 toy problem?

15 A. Yes.

16 Q. So real research on toy problems get  
17 published, but toy research on real problems does not  
18 get published?

19 A. The only reason this is important is  
20 that we will get belaboured with one of these corners  
21 as if we had actually -- particularly things can reach  
22 the media if they were, in fact, real research on the  
23 real problem when, in fact, they are not.

24 Q. On page 11 in the last paragraph  
25 under that heading you come to a conclusion and your

1 conclusion is that toy research on real problems is  
2 absolutely essentially.

3 Now, within the context of the kind of  
4 issues that we have before us here, what's the  
5 implication of that?

6 A. What I described earlier today as an  
7 approach on -- or in the last couple of days, as an  
8 approach to structuring yield curves for habitat and  
9 making habitat supply analysis where you find, discover  
10 the probable impact of a harvest schedule and a  
11 silviculture schedule on availability of different  
12 habitats over time would be considered toy research on  
13 a real problem.

14 THE CHAIRMAN: What you would rather  
15 have, though, is real research on a model, but since  
16 you cannot get to the real research in terms of  
17 scientific vigor you will settle for toy research on  
18 the problem. Is that what you are basically saying?

19 THE WITNESS: Yes. There are two schools  
20 of thought. I have colleagues who would rather do it  
21 the other way, they would rather be down here. My  
22 preference for that one, and it is a preference rather  
23 than -- it is value claim, the way I have worded it  
24 there, stems from the fact that I don't think we have  
25 got a whole bunch of time to worry about how we are

1 influencing those systems; and, therefore, I would go  
2 for toy research on the real system, so that as early  
3 as possible we discover how we are influencing the real  
4 system.

5 MR. HANNA: Q. And taking the analogy  
6 that you used and the analogy that I was working  
7 towards, without undertaking that type of analysis -  
8 the toy research on real problems - it may be very  
9 difficult to see these types of cumulative impacts, is  
10 that not the essence of much of the cumulative impact  
11 concern?

12 A. I think it would be fair to say that  
13 that particular symposium concluded, yes, that we  
14 needed to work to apply what scientific rigor we could  
15 at the scale of the real system as quickly as possible  
16 because only by considering the bounding, both  
17 temporally and spacially that was essential to a real  
18 system, did we have a realistic chance of catching  
19 these things as they accumulate.

20 Q. Now, the next heading on the bottom  
21 of page 11 deals with the forms of cumulative impact,  
22 and I believe you have listed three. I don't think we  
23 need to deal - unless you feel we do - with the  
24 continuing incremental insult.

25 I believe, however, the second and third

1 forms, which are shown on page 12 of the first  
2 paragraph and the second paragraph, do relate  
3 specifically to matters before this Board, would you  
4 agree?

5 A. Yes.

6 Q. Can you explain the second form of  
7 cumulative impact as you have listed there on page 12?

8 A. The form described is that of a  
9 single action where the result is an alteration of  
10 system structure. So if you recall the age-class  
11 structures that I showed the very first day, those in  
12 fact are the bases of forest dynamics, and if you in a  
13 sudden way intervene so that you change that age-class  
14 structure you have a persisting accumulating, if you  
15 will, impact in system dynamics. The impact will stay  
16 there for some consistent period of time.

17 The example that is used is, in fact, an  
18 inaction, it is a natural action or human inaction.  
19 The forest of the seven eastern counties of Nova  
20 Scotia, principally Cape Breton Island were, in fact,  
21 damaged by spruce budworms. To the extent that the  
22 age-classes above, say, 20 years old were virtually  
23 eliminated.

24 The impact at the time seems minimal in  
25 that there is still wood some place, you can go and get



1 wood across the strait, if you want, but it will  
2 persist for 50 years in terms of forest dynamics, it  
3 would be a minimum of 50 years before the impacts of  
4 that had been fully displayed.

5 I noticed that it mentions that one of  
6 the cumulative impacts of that particular thing was  
7 that it assures that there will, in fact, be another  
8 future forest there that would be just like the one the  
9 budworm liked the first time which means there will, in  
10 fact, be another outbreak. But that would be a  
11 thoroughly natural event, if you were prepared to  
12 accept that.

13 Q. So that is the first -- that's the  
14 second form of cumulative impacts. Have you dealt with  
15 the third form?

16 A. The example that this would be a form  
17 that -- an impact that accumulates over space and time,  
18 and the example that is used is clearcutting, where  
19 clearcutting operates to initiate a new stand.

20 And because of the variety of forms of  
21 response that you can get on a clearcut over a period  
22 of time each time you clearcut you clearly -- you are  
23 accumulating in the forest an impact and that impact  
24 will be displayed as the proportion of stands on  
25 different yield curves.

1                   What proportion are on a plantation yield  
2                   curve; what are on a natural regen curve; what  
3                   proportion spaced, and so on.

4                   THE CHAIRMAN: But if planned and managed  
5                   appropriately it may not necessarily be viewed overall  
6                   as a negative impact?

7                   THE WITNESS: That's correct. In any of  
8                   these cases the issue at hand was: What are the ways  
9                   impacts accumulate, not whether were they good or bad.

10                  MR. HANNA: Mr. Chairman, I will just  
11                  inject that environmental assessment, at least in my  
12                  view, is not limited strictly to negative impacts, it  
13                  deals with positive impacts also and that is where I am  
14                  coming from on -- and I agree with the Board that it  
15                  does not limit itself to negative impacts.

16                  Q. Can we move, Dr. Baskerville, to page  
17                  13. I am looking in the left-hand column, this is  
18                  under this heading:

19                  "Do these issues vary with the scale of  
20                  the problem?" that's on the previous  
21                  page, the heading at the bottom of the previous page.

22                  Now, the first paragraph there, about  
23                  two-thirds of the way down there is a sentence that  
24                  says:

25                  "On the other hand, if impacts on the

1 biological system are accumulating as  
2 a result of some cycling insult, such as  
3 clearcutting, then there is need for a  
4 wide geographic area to be considered and  
5 with a fine resolution of time within  
6 that total in order to detect and  
7 forecast the relative system dynamics."

8 THE CHAIRMAN: That is not what it says.  
9 "With a fine resolution of area within  
10 that total..."

11 MR. HANNA: Excuse me, Mr. Chairman, I  
12 apologize, yes. Thank you.

13 Q. Now, I would like to look at -- first  
14 of all, can you explain to me how you came to that  
15 conclusion, the reason for that conclusion?

16 A. I would hope it was self-evident,  
17 that if you have an accumulating impact on 100,000  
18 hectares, that you will have to look at the whole  
19 100,000 hectares to assess that, because it is going to  
20 be impact relative to the whole area.

21 It is accumulating relative to what your  
22 expectations are from the whole area, and that you  
23 would have to watch very carefully the spacially  
24 pattern of that because whether it accumulated in  
25 separate little spots or whether it accumulated in one

1 large area would make a difference.

2 Q. And the fine resolution of area is  
3 comparable to what we were speaking about this morning,  
4 that if you look at very broad levels you won't see the  
5 type of effect because there is too much averaging?

6 A. Exactly. It would be very difficult,  
7 in my opinion, to show on an average case the impact in  
8 the forests of Northern Ontario of clearcutting. If  
9 you averaged all of the forests together I doubt if you  
10 could pick out the impact, but if you stood on one you  
11 can certainly see the impact, that is the distinction.

12 Somewhere inbetween the whole forest of  
13 Northern Ontario and the one hectare is a level at  
14 which it is reasonable to view those.

15 Q. Now, putting that particular example  
16 in the case of wildlife impacts and trying to detect  
17 wildlife impacts, would that same conclusion be  
18 appropriate?

19 A. I think it is. I have to shift gears  
20 here because in this case I would prefer to think of  
21 managing as the creation of impacts that you are  
22 intentionally creating as opposed to trying to identify  
23 the ones you want to prevent, which is what was being  
24 looked at here. It is an analogous situation, yes.

25 Q. And sort of extending from that,



1 because of the large number of variables that can  
2 potentially influence the population, and forgetting  
3 about hunting and that sort of thing, just the habitat  
4 characteristics, it would take a large number of  
5 replicates to be able to pick out what were the  
6 controlling variables?

7 A. Replicates in what sense?

8 Q. Perhaps replicates is not the  
9 appropriate word in a classical scientific way, but  
10 examples; in other words, by looking at a great  
11 diversity of different sites one may be able to deduce  
12 the dominant factors that are influencing the  
13 population dynamics within the habitat?

14 A. By looking at it you would perhaps  
15 acquire some feel for how it was behaving. I think the  
16 intent here in this paper, although it did not get down  
17 to measuring, certainly my intent would be that what  
18 you need to do is assess impacts that you have created,  
19 you take an action and expect an impact, you try to  
20 assess it and then you would treat each step as a  
21 hypothesis which you would test.

22 Q. And as a way to reduce the  
23 uncertainty to undertake those measurements on a large  
24 number of different cases, and by that deductively  
25 arrive at the conclusion?

1           A.    No, I don't believe that. I do not  
2 believe that nature operates probablistically, so that  
3 if we examined all of the events that occurred in  
4 nature and found that the probability of an event was  
5 .6372 that we would be any wiser at all about whether  
6 or not it was going to happen here now.

7           I believe that there is cause/effect,  
8 that the system is driven by cause/effect and that our  
9 investigation should aim at the elucidation of  
10 cause/effect and not at probability of occurrence over  
11 large areas.

12           THE CHAIRMAN: Mr. Hanna, without going  
13 too much further in this debate, what is your bottom  
14 line of cumulative effects? What are you trying to  
15 elicit out of this witness?

16           MR. HANNA: Well, there are two things,  
17 Mr. Chairman: First of all, the matter of - and I will  
18 be dealing with this shortly - is the matter of what  
19 types of effects are necessary in adaptive management,  
20 the type of discussion we had yesterday. The general  
21 types of feedbacks that are necesssary in adaptive  
22 management to be able to provide that feedback  
23 regulation that Dr. Baskerville has talked about.

24           It also has to do with - and we will be  
25 dealing with this in our own case - the types of

1 research that is required in, I guess we could say, the  
2 effects monitoring type of program that the Ministry  
3 has brought forward that would be appropriate to look  
4 at cumulative effects across the forest.

5 And this paper deals specifically with  
6 that issue and that is the reason why I think it's  
7 important to get Dr. Baskerville's views on what is  
8 appropriate, at least at this generic conceptual basis  
9 that he has presented in this paper.

10 MR. FREIDIN: I am not too sure that the  
11 paper deals with particular issues, but rather it is an  
12 article which raises issues of research and how to  
13 approach, and uses certain examples.

14 I don't believe - and I have not had an  
15 opportunity to read it - I do not believe it is an  
16 article which is stated to be identifying specific  
17 problems which need specific attention.

18 MR. HANNA: Mr. Chairman, I didn't  
19 suggest that it was in any way. I think I used the  
20 word "generic" and that was my intent. It deals with a  
21 philosophy, a way to go about dealing with research or  
22 laying out research programs, and it is that level I am  
23 dealing with.

24 I did not suggest at any time that this  
25 paper indicates we should do research on the effects of

1 warblers in clearcuts. That is not the direction of  
2 the questioning at all.

3 THE CHAIRMAN: Well, I do not know how  
4 much further you want to go with the paper itself--

5 MR. HANNA: I am --

6 THE CHAIRMAN: --but it seems to the  
7 Board that we have the gist of what is meant  
8 conceptually by "cumulative effects assessment".

9 MR. HANNA: Perhaps I can tell you the  
10 questions I was going to ask and see what...

11 The remainder of the paper -- I am  
12 looking at two primary things that Dr. Baskerville has  
13 raised in this paper, and that is the need to lay out  
14 things explicitly and the implications in cumulative  
15 impact research if you do not lay out relationships  
16 explicitly and what he terms "bridging".

17 The bridging, in other words, taking that  
18 research result and then applying it - I hope, Dr.  
19 Baskerville, you will interrupt here if I am wrong -  
20 that research and applying that then in actual  
21 management decision.

22 Those are the two things that I want to  
23 deal with specifically with his paper and then I have  
24 some general questions I want to deal with in terms of  
25 effects monitoring -- not effects monitoring,



1 cumulative effects in a general way.

2 THE CHAIRMAN: Okay. Do it as quickly as  
3 you can.

4 MR. HANNA. Q. Can we look, Dr.

5 Baskerville, on page 13 under the heading:

6 "Are current techniques effective in  
7 CIA?"

8 I am looking at the second paragraph  
9 there starting with "While the techniques..." And  
10 particularly the second sentence which says:

11 "All forecasts are based on a  
12 characterization of system relationships.  
13 In some techniques this characterization  
14 is implicit and, therefore, neither  
15 easily acceptable to the reviewer nor  
16 scientifically rigorous."

17 Can you explain to me what you mean there  
18 by "scientifically rigorous" in that context?

19 A. Scientifically rigorous in the sense  
20 that there exists a systematic proof by experimentation  
21 with a hypothesis and a test of acceptance or rejection  
22 of the hypothesis.

23 Q. And this is part of the reason why  
24 you are advocating need for explicit relationship, so  
25 that they can be subject to that test?

1                   A. Yes, exactly. That's what I have  
2       said consistently I think here.

3                   Q. At the top of the next column you  
4       make the statement:

5                   "It is a curious fact of human  
6       reaction that the wildest of implicit  
7       system relationship structures can go  
8       unchallenged because they are unseen."

9                   With respect to the Von Mantel example  
10      that you gave was, one of the points that you were  
11      trying to elucidate there was that the implicit  
12      assumptions were, in your words, somewhat wild or  
13      unrealistic?

14                  A. Yes, exactly. If you make a sweeping  
15      enough generalization most people won't bother to  
16      attack it because who wants the pain.

17                  Q. It is a very difficult exercise?

18                  A. It is an impossible exercise.

19                  Q. Can you explain the next paragraph  
20      where you talk about bridging, what you mean by  
21      "bridging" as it is explained in that paragraph that  
22      starts with:

23                  "Explicitness of system relationship..."?

24                  A. The issue there is that if we examine  
25      a toy version of the problem, a model, we say this is

1     what we believe it is and we carry out our experiments  
2     and come to some conclusions about what we might do  
3     with the real system. In fact, that is what this is  
4     all about, we have a model in our mind, a toy one, of  
5     how a forest behaves and we are talking about what  
6     interventions can we allow or disallow.

7             The real crucial step comes in: How do I  
8     maintain the reasonable rigor when I go from the toy  
9     problem to the real problem, which is the intent all  
10    along, that when we have found a resolution, in  
11    whatever way we have modeled the problem, how do we  
12    retain reasonable scientific rigor, scientific  
13    confidence when we go from the completely defined toy  
14    model to the real model in which most of the moving  
15    parts are not defined. We simply couldn't comprehend  
16    them.

17            What we have done to get to the toy model  
18    was aggregate, to add together all the stands following  
19    one yield curve and so on. The bridging problem is in  
20    how you get from your solution at this level back to  
21    the real level in the real world, still having some  
22    confidence that the scientific bases, if you will, of  
23    the relationships that you have got hold at the broader  
24    spacially scale.

25            Q. Now, the next section deals with how

1 CIA can be improved, and I am looking at the middle of  
2 that paragraph it says:

3 "What is needed most of all in  
4 cumulative impact forecasting is more  
5 scientific rigor. In preparing an  
6 analysis of a real problem from bits and  
7 pieces of research on toy problems it is  
8 important that all the relationships are  
9 explicitly stated than they be right."

10 Now, given that the moose habitat  
11 guidelines are implicit in their cause/effect  
12 relationships, how could you apply this scientific  
13 rigor in analysing their effect?

14 A. I suppose the only -- the best  
15 approach would be to find a place where they were being  
16 implemented and then attempt to assess the response of  
17 the population and actually test to see what their  
18 effectiveness was. Forecast, you would have to make a  
19 forecast of what might have happened if they had not  
20 been implemented.

21 The part of that sentence that strikes me  
22 as most important is that the crucial element is that  
23 you get the right relationships in and not necessarily  
24 that you get them in rightly.

25 If you leave a relationship out there is



1 nothing that is going to save you, there is no buffer  
2 in the system, you have left a piece of the dynamics  
3 out and you cannot fix it. If you put it in and put it  
4 in wrong, with any kind of reasonable analysis, you are  
5 going to discover fairly quickly that you have made an  
6 error. So the important point is to get the right  
7 relationships in rather than to worry about precision.

8 Q. Once you have put those right  
9 relationships in have you essentially at that point got  
10 a habitat supply analysis or the tool necessary for  
11 habitat supply analysis?

12 A. If you did it for that purpose, yes.

13 Q. And without doing that you would not  
14 be able to conclude -- you would not be able to  
15 undertake the type of cumulative impact assessment  
16 research that you outlined in this paper?

17 A. Clearly the research here focused on  
18 making quantitative assessment, quantitative  
19 evaluations of things to the extent possible. So the  
20 answer is, yes.

21 THE CHAIRMAN: We are thinking of taking  
22 a break, Mr. Hanna

23 MR. HANNA: I was just coming to that,  
24 Mr. Chairman. I will probably be about another 40  
25 minutes, I would expect at most. I could be less than

1       that.

2                   THE CHAIRMAN: All right. So why don't  
3 we come back in 15 minutes and ensure that Dr.  
4 Baskerville gets out as early as he can.

5                   Thank you.

6       ---Recess taken at 2:52 p.m.

7       ---On resuming at 3:19 p.m.

8                   THE CHAIRMAN: Thank you. Be seated  
9 please.

10                  Mr. Hanna, just before we continue, the  
11 Board is prepared to dispose of the matter that Ms.  
12 Swenarchuk dealt with at the outset very quickly.

13                  We have heard the representations of  
14 counsel and the Board. In the interest of furthering  
15 the negotiation process, in the interest of fostering  
16 as much cooperation as possible, in the interest of  
17 placing some faith upon the ability of counsel not to  
18 abuse in any way what we attempted to curtail with the  
19 inclusion of both of those paragraphs, we are prepared  
20 to remove them from the terms of the Order, and we  
21 shall eagerly await what happens as a result of the  
22 overall process, and we shall certainly utilize any of  
23 our other powers, to the extent that we have to, in  
24 order to expedite the overall hearing.

25                  So said, back to you, Mr. Hanna.

1 MR. HANNA: I am sure I can, on behalf of  
2 the parties, thank you, Mr. Chairman.

3 THE CHAIRMAN: We will, by the way, send  
4 out a notice to the other parties on the list  
5 indicating to them that those two paragraphs have been  
6 deleted by this direction today.

7 MR. HANNA. Q. Dean Baskerville, I would  
8 like to explore this cumulative impact issue just on  
9 several matters here, and then we will be finished that  
10 component.

11 You are familiar with the matter of soil  
12 compaction, disruption, whatever, that may affect site  
13 productivity as a result of harvesting and site  
14 preparation activity?

15 A. In a broad sense, yes.

16 Q. Could that be viewed as a form of  
17 cumulative impact?

18 A. Yes.

19 Q. How would you go about assessing the  
20 significance of that impact, if you felt that that was  
21 warranted, in very broad general terms, obviously I am  
22 not asking for a detailed analysis?

23 A. Attempt to measure stand development  
24 on areas that have been harvested by different  
25 techniques that generated different levels of soil

1 compaction and soil disruption.

2 Q. Now, based on the work that you are  
3 familiar with, has research of this nature been done at  
4 a level that could allow you to arrive at forest level  
5 conclusions?

6 A. I would guess not, Mr. Chairman, but  
7 I would not claim to be fully aware of that literature,  
8 that is not part of my regular reading.

9 Q. I take it then that it wouldn't be  
10 fair to ask you if you feel that that type of analysis  
11 is warranted?

12 THE CHAIRMAN: Well, it would be  
13 difficult for him to answer that if he is not familiar  
14 with the literature on the subject; would it not?

15 THE WITNESS: Yes.

16 MR. HANNA. Q. Now, with respect to  
17 cumulative impacts, in undertaking an evaluation of the  
18 acceptability of impacts one must look at those  
19 cumulative impacts; you would agree with that?

20 A. Yes.

21 Q. One of the difficulties in evaluating  
22 cumulative impacts on a case-by-case basis is trying to  
23 put them in the broader concept; would you agree with  
24 that?

25 A. I am not sure what you mean by



1 "case-by-case"?

2 Q. Let me give you a specific example,  
3 then: Let's say that we had an area of concern that  
4 was, say, a reserve area along a stream bank that was  
5 identified as being suitable for, say, a certain type  
6 of wildlife habitat -- it does not have to be along a  
7 streambank, just a piece of habitat that is seen as  
8 potentially having importance for wildlife.

9 Now, deciding whether or not that impact  
10 is acceptable or not, it would be very difficult to  
11 look at that individual issue and make a decision on  
12 acceptability?

13 A. Broadly speaking, yes. The safest  
14 way, if it is a less than total impact - and I will  
15 come back to that - the safest way would to be to see  
16 what the timespan of the impact was, how long did it  
17 persist, how did natural healing, as it were, go on,  
18 and what was the relevance in the context of the whole  
19 forest for whatever thing that you were examining,  
20 whichever element you were examining.

21 There are obviously some things that are  
22 irretrievable, I mean you cannot have a gravel pit and  
23 a deer yard and a plantation in the same place, so  
24 there are some impacts that I think you can answer  
25 immediately and say: No, I do not want it.

1 Q. And even in that case, though, the  
2 gravel pit example, if it is a localized type of impact  
3 it is hard to determine whether or not that is  
4 acceptable unless you look at still the whole -- those  
5 spacially and temporal contexts within which you are  
6 evaluating. Would you agree with that?

7 A. True, but less hard. I mean we are  
8 taking land out of productivity either for timber or  
9 for habitat.

10 Q. Now, if you have objectives set in  
11 terms of a defined piece of land and if those  
12 objectives had been arrived at through the process that  
13 you have spoken about through providing realistic  
14 estimates, production possibilities to the public, and  
15 the public has determined -- an informed public has  
16 made a decision that this is what they want off the  
17 land, would those objectives provide a context within  
18 which to assess the incremental type change that might  
19 occur in the example I gave you?

20 A. If the objectives were measurable, if  
21 you could tell when you reached them or when you were  
22 deviating from them, yes.

23 In fact, that would be the way you would  
24 tell whether or not the impact was acceptable, you  
25 would look at it to determine whether or not it

1 prevented you from reaching your objective.

2 Q. In order to apply the objectives in  
3 that way one would have to have the objectives for the  
4 defined piece of land in the same context in which the  
5 impact was being assessed?

6 A. I am not sure I follow.

7 Q. Perhaps I will not pursue that.  
8 Would you say that impacts on watersheds as a result of  
9 timber management could be seen as cumulative impacts,  
10 also changes in waterflow, water quality?

11 A. Could be, certainly they could be.  
12 It would depend -- the level will depend entirely on  
13 the scale you mean by watershed.

14 If you meant the little creek that flows  
15 by my house that's only about three feet wide, it would  
16 be easy to clearcut the entire watershed. If you meant  
17 the St. John Valley or the Nagagami Valley, then the  
18 impact is going to get lost in the noise.

19 Q. But those types of impacts, those  
20 impacts on water quality could be dealt with in the  
21 same type of procedure as we have talked about in terms  
22 of the terrestrial impacts in terms of setting up that  
23 cause/effect linkage and objectives and whatever and  
24 looking at how it is going to affect the spacial and  
25 temporal scales?

1           A. I haven't thought about those very  
2 much, but it seems to me there is no reason why they  
3 couldn't be.

4           Q. The last topic I am going to deal  
5 with you on, Dean Baskerville, is the matter of  
6 feedback in adaptive management and the measurements  
7 needed to deal with feedback in adaptive management.

8           And to try and make this simple, I would  
9 like to deal with just what's required. I know you've  
10 heard wildlife a lot today, unfortunately or  
11 fortunately that's one of the primary interests of my  
12 client and so that's what I'm dealing with, wildlife.

13           I would like to deal with - and we've  
14 talked about moose, it makes it simple and whatever -  
15 I'd like to deal with how that might be applied with  
16 respect to moose.

17           Now, what type of feedback -- and let's  
18 talk about a specific timber management unit, defined  
19 piece of land. What type of feedback would you  
20 envisage would be required for the adaptive management  
21 type of concept to be applied?

22           A. You would need a formulation of the  
23 response of a moose population to the actions that are  
24 being considered, then the loop would be to examine an  
25 action, to forecast the result, to evaluate the



1       acceptability of that result and then go back to close  
2       the loop back to action.

3                   Q.   And specifically what would you  
4       envisage being measured?  I am trying to get down to  
5       actually what would be the sort of things you would  
6       want to see measured?

7                   A.   The crucial element to measure is the  
8       thing you are trying to control.  So that if the target  
9       is in fact moose population, then the measure or the  
10      prime measure of response should be based on that.  It  
11      may take some intervening measurements to get there, it  
12      may not even be possible sometimes to get the target,  
13      sometimes these are very illusive.

14                  But to the extent possible, if you want  
15      to control temperature in this room, it's temperature  
16      you measure, not whether the switches on the wall are  
17      on or off.  The principle is the same.

18                  Q.   So you want to focus on those  
19      indicated measures, that's what you want to measure?

20                  A.   On forecasted indicators generally,  
21      but particularly on the one that is the element you  
22      purport to control by your actions or influence,  
23      whichever.

24                  Q.   Now, you had indicated -- I believe  
25      you talked about following moose tracks until you found

1 the moose and invariably that always seems to be the  
2 case. Can you expand on why you felt this type of  
3 measurement was inappropriate? I believe those were  
4 your words.

5 A. Inappropriate all by themselves. It  
6 is a very reasonable way to get an estimate of the  
7 moose population in a particular area.

8 I had a graduate student a couple of  
9 years ago who -- that's how exactly how -- he flew back  
10 and forth systematically every week on quite a large  
11 area and when they encountered moose tracks they simply  
12 flew along them until they found whether there was a he  
13 or a she moose at the end of the trail.

14 THE CHAIRMAN: Couldn't tell from the  
15 footprints?

16 THE WITNESS: Well, they had to be sure  
17 that it was a live track too.

18 So to get an overall assessment of the  
19 population, an initial condition it would be called in  
20 a forecast, how do I establish where we are now so that  
21 I have a reasonable base to make a forecast. That's  
22 not a bad way to track. It's expensive, but it would  
23 even be a way to assess the moose population.

24 Indeed in that case the person is working  
25 for a wildlife management agency, that area is under a

1 controlled hunting regime as part of an adaptive  
2 experiment and they are using the same technique to  
3 monitor the moose every year, monitor in the sense that  
4 we were using it the other day.

5 MR. HANNA: Q. Certainly I think many of  
6 the wildlife biologists in Ontario would agree with you  
7 that there is a value in doing those sort of surveys.  
8 Why I was unclear though was why you felt in that  
9 particular example that following moose tracks was  
10 inappropriate? I didn't understand. Like, I  
11 understand why you are saying in that case it was  
12 appropriate, and what was the case that it was  
13 inappropriate?

14 A. I can't remember. I remember the  
15 discussion, but I can't remember the substance of it.

16 THE CHAIRMAN: I thought it was in the  
17 course of the discussion about trying to make a  
18 forecast at what the population level should be, and  
19 you just don't rely upon following moose tracks to  
20 reach that forecast, you have to bring into account all  
21 the other factors including habitat requirements.

22 THE WITNESS: Now I think that was --

23 THE CHAIRMAN: Was that not the area?

24 THE WITNESS: It is coming back to me  
25 now.

1 I also believe that there was a  
2 discussion of intervention and whether or not the  
3 intervention was affecting moose population, but the  
4 interventions might be to preserve calving areas and  
5 that sort of thing, and those you need to assess in  
6 whether or not the moose use the calving areas not  
7 whether or not -- as well as the total moose  
8 population.

9 MR. HANNA: Q. I think that was the  
10 discussion that we had yesterday. The discussion was  
11 actually on December 5th and I will just read you my  
12 notes and perhaps it will help you a bit.

13 And I believe it was actually the  
14 Chairman who was asking and I think the question was:  
15 How do we know enough, when have we got enough  
16 information and that sort of thing, and I believe that  
17 you concurred that we always want more data, but it is  
18 not just gathering data but the crucial data, the right  
19 things, and I believe your words were: We should  
20 concentrate on what we can comprehend.

21 And I think the analogy you gave was:  
22 You cannot see the forest in anything but numbers, and  
23 then you went on to the problem of moose as in spades,  
24 I think were actually your words, and you said: It's  
25 anecdotal data out of context, the population.



1 A. Mm-hmm.

2 Q. And your words were: Provides  
3 comfort but it fails to provide the scale of  
4 information at the level of management.

5 Now, can you just expand on what you  
6 meant in that particular context?

7 A. Okay. The example that I just cited  
8 was an example where there is an intent to try and  
9 regulate the moose population by regulating hunting and  
10 by keying on three features of population dynamics that  
11 seem to be important, the calving for summer survival  
12 and disease in the moose later on, predation being  
13 important only in the first five or six weeks in the  
14 life of the calf.

15 So that in the case we just described,  
16 the intent is to measure the whole population and to  
17 look at those three processes because the forecast is  
18 based -- the sensitivity in the forecast is based on  
19 how well those three processes are characterized.

20 In a broad sense, if you simply went to  
21 the same area and did a study on calving, you could  
22 come up with a conclusion that wasn't usable in the  
23 forecast really easily. I mean, a simple observation  
24 on it, it wasn't related in the context of a  
25 population -- let me state, population -- all

1 populations there is a universal totalogy; the  
2 population next year is guaranteed to be equivalent to  
3 the population this year plus births, minus deaths,  
4 plus immigration, minus migration and no other  
5 possibility exists.

6 From that totalogy you build a population  
7 model that says how those things actually happen and  
8 from that the key isn't just births, it turns out to be  
9 the opportunity -- the availability of calving areas  
10 and first-year survival, the first summer survival in  
11 fact. So the search has to key on the thing -- this  
12 thing that would make your forecast sensitive to error,  
13 not just the study of moose. That was the point I was  
14 trying to make.

15 Q. So, for example, going out and  
16 radio-collaring moose may not necessarily provide you  
17 with that crucial or sensitive data that you're  
18 referring to?

19 A. All by itself would not provide any  
20 information on calving first-year survival or dis --  
21 well, it would on disease because you would have the  
22 collars that stopped.

23 On the other hand, one of the ways you do  
24 this is to capture moose. You might want to do it, but  
25 it wouldn't -- you might want to put collars on but

1 collars in and of themselves won't give you all the  
2 information you need.

3 THE CHAIRMAN: But it could give you the  
4 ultimate number as to whether you've met your target  
5 but you wouldn't necessarily know why.

6 THE WITNESS: Yes. But it can also help  
7 to find out why. In this case, they use a procedure,  
8 it is fairly common and used extensively in some  
9 interesting moose reseach in Newfoundland where they  
10 come in with a helicopter in the first couple of days  
11 after the calf is born and then get the mother and the  
12 calf separated, somebody jumps out of the helicopter  
13 while the helicopter keeps the mother away and snaps a  
14 collar on the calf.

15 THE CHAIRMAN: And hopes to hell the  
16 mother doesn't run quickly.

17 THE WITNESS: I'm not sure what the  
18 compensation rates are for this. It then allows the  
19 tracking of a number of calves to find out what the  
20 cause of mortality is.

21 MR. HANNA: Dr. Baskerville, on behalf of  
22 my client, I would like to thank you very much for  
23 coming to Ontario and sharing your knowledge with us  
24 again.

25 And, Mr. Chairman, those are my questions

1 for Dean Baskerville.

2 THE CHAIRMAN: Thank you, Mr. Hanna.

3 Well, Dean Baskerville, we will adjourn  
4 for the week and commence next Monday.

5 Mr. Curtis, we will start with you on  
6 Monday at 9:00 a.m.

7 MR. CURTIS: (nodding affirmatively)

8 THE CHAIRMAN: And you won't have any  
9 difficulty being back for Monday at nine; will you?

10 THE WITNESS: I will be sure to be here,  
11 sir.

12 THE CHAIRMAN: Okay.

13 THE WITNESS: I have a meeting for a  
14 search committee in the President in St. John on  
15 Sunday, but I won't go down unless I am sure the  
16 weather will let me get back.

17 THE CHAIRMAN: Okay. Well, we will  
18 commence at nine o'clock then, and it looks very much  
19 like we will be able to complete by the end of Tuesday,  
20 if not even Monday.

21 Well, no, you have a half a day to a day;  
22 did you say, Mr. Freidin?

23 MR. FREIDIN: I think there is a chance  
24 of it Monday. If the original estimates of the  
25 Ministry of the Environment and Mr. Curtis are correct,



1 and I think they are the only other two people, there  
2 is a good chance of finishing on Monday.

3 THE CHAIRMAN: All right. Well, if you  
4 wouldn't mind, Dean Baskerville, if it looks like we  
5 can possibly finish Monday. We might consider sitting  
6 a little later.

7 Oh, you have re-examination, Mr.  
8 Turkstra; don't you. So that it's unlikely we would  
9 finish Monday in any event, so perhaps we will need  
10 Tuesday as well.

11 MR. TURKSTRA: Well, I can tell you I  
12 decided today that I was not going to ask Dr.  
13 Baskerville to give his opinion on the area and time  
14 bounding of the environmental assessment that you are  
15 dealing with, that might not...

16 THE CHAIRMAN: That could be prone to  
17 error.

18 MR. TURKSTRA: And the other thing that  
19 we learned, that I should tell you, that happened  
20 during the break that you are not privy to, is that I  
21 learned that the number of hours that it takes of  
22 lectures in Dr. Baskerville's program to get your  
23 degree in forestry, and we worked out that you probably  
24 already exceeded that, and I am now negotiating with  
25 Dr. Baskerville, as counsel to the Board, on whether or

1 not you are entitled to your degree in forestry as a  
2 result of the number of hours that you have been in  
3 this hearing so far.

4 THE CHAIRMAN: Well, we will probably  
5 settle for an undergraduate degree, we won't insist on  
6 the Masters.

7 MR. TURKSTRA: But the state of  
8 negotiations at the moment is that he wants to know  
9 first of all whether or not you accept his views before  
10 he gives the degree.

11 THE CHAIRMAN: Well, you let us know  
12 whether we will get the degree first, and then we will  
13 tell you.

14 All right. We will adjourn until 9:00  
15 a.m. Thank you.

16 ---Whereupon the hearing adjourned at 3:45 p.m., to be  
17 reconvened on Tuesday, December 12th, 1989,  
commencing at 9:00 a.m.

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